POPULAR Computing WEEKLY

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NEWS DESK

Amstrad outsells IBM PCs

June launch for new Commodore Amigas?

1986 best sellers: Gallup's chart of the year

Melbourne House sells out to Mastertronic

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REVIEWS

Chocks away with Tomahawk and Gunship

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SOFTWARE

Locoscript errors removed with Locospell



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ABC

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Mastertronic buys Melbourne House

MELBOURNE House, publisher of *The Hobbit* and *Way of the Exploding Fist* has been sold to budget pioneer Mastertronic.

The sale gives Mastertronic its first full price software label which will continue to be called Melbourne House, and will operate separately from Mastertronic's own software activities.

Over £1 million

Melbourne House (Publishers) has cost Mastertronic over £1 million, but the Australian side of the company Beam Software (game development and programming) and SLM Australia (distribution) is not included in the sale, and will continue to be run by Alfred Milgrom and Naomi Besen, Melbourne House's founders.

However, the Australian holding company for the group, Melbourne House PTY, will change its name – rights to the title Melbourne House were included in the sale.

Melbourne House staff are likely to move from their building in Hampton Wick, Surrey, to Mastertronic's offices in London and some redundancies are inevitable.

"Melbourne House will remain editorially autonomous and in some degree their products will be competing with ours," said Frank Herman, director of Mastertronic. He confirmed that Mastertronic would continue to source software from Beam in Australia to be published by Melbourne House.

Herman is also considering the possibility of releasing some of Melbourne House's impressive back catalogue at reduced prices. "The back catalogue certainly has value, not necessarily at a new budget price, although I'd love to see a £1.99 *Fist* – there's a lot of life left in *Fist*."

No books

Mastertronic does not intend to take over the book publishing side of the company.

For Melbourne House, director Alfred Milgrom stated: "Naomi and I will retain our full interest in Melbourne House Australia. We are simply selling the UK company with which we will continue to have a close relationship."

He added: "This move will allow us to expand our licensing possibilities in the US and Japan."

PCW protector

SEAL 'N' TYPE is a soft moulded plastic cover for the PCW8256 to guard against damaging the keyboard with spilled coffee or other liquids.

The clear plastic stretches over the keyboard to fit it exactly, and costs £7.50 (plus £1.25 p and p) from Kado Enterprises.

The company also runs a printer ribbon re-inking service. Details from Kado at Kilmorey Court, 279 St Margaret's Road, Twickenham, Middlesex TW1 1PN, 01-892 0215.

Acorn OEM's grow

ACORN'S OEM operations continue to grow with the news that the news agency Reuters has now taken delivery of its 2000th Application Processor Module, based on the BBC micro and Econet local area network.

Master circuit board

Acorn's custom systems division is now making the BBC Master Series micros available in component form for companies who wish to have the machines customised for their specific needs.

US firms to join Microprose

MORE American companies are set to cross the Atlantic to establish their own UK divisions and offices following Microprose's split from US Gold at the end of last year and the set-up of its UK arm in Gloucestershire.

Microprose itself, the American simulation specialist, is on the point of announcing a joint venture agreement in this country with a major American entertainment software company.

Microprose's UK manager Stewart Bell would not name names but expects a formal announcement to be made this week.

"We have signed a long term agreement with them to joint venture in the UK. This company will have their own building and staff here but we will be doing their sales and marketing."

The identity of the company has been variously suggested as Datasoft, Mindscape, Epyx. However Bell says categorically that he has had no discussions with Epyx, whose contract with US Gold still has some months to run.

Stewart Bell of Microprose

Mastertronic sets up coin-op label

MASTERTRONIC has had a busy week. While the UK side of the company was acquiring Melbourne House, the US division has been setting up an operation called Arcadia Systems to produce games for the arcades.

Arcadia Systems will be based in California's Silicon Valley and is already looking for video games developers in the US.

Amstrad topples IBM in survey

AMSTRAD outsold IBM in the business market during December, according to a survey conducted by market research company Romtec.

The survey gives Amstrad a 26.3% of sales, with IBM holding 24.9%.

However, the survey did not restrict itself to sales of PCs and PC compatibles. Amstrad's PCW machines were included in the figures, as were other IBM machines.

It also did not include consumer retail outlets such as Dixons, nor direct sales from the companies themselves. These two factors may well go some way to cancelling each other out.

For Amstrad, a spokesman commented: "We are obviously delighted that our push towards the business and corporate market has paid off so soon – within three months of launch."

1st word on PC1512

THE Amstrad PC1512 has gained another word processor, GST's *1st Word Plus*, an implementation of its ST word processor.

GST's Chris Scheybeler commented: "*1st Word Plus* has been written specifically to make full use of the Amstrad's features including the mouse and Gem windowing software."

1st Word Plus will cost £79.95. Details from GST at Cambridge Science Park, Milton Road, Cambridge CB4 4WE, 0954 81991.

Modem House calls in police and liquidator

MODEM HOUSE, the Exeter based communications equipment seller, has gone into voluntary liquidation at a time when complaints are flying back and forth among UK modem manufacturers, which have led to two police investigations by Devon CID

One allegation which is being followed up has been made by Exeter based Modem House against another company the second has been made against Modem House a director Keith Rose

Detective Sergeant Hooper investigating the complaints, could not give any details It s early days yet and it would be wrong to say anything now I can t tell whether either complaint will be substantiated, but there is an inquiry

Two complaints are being investigated, one made by Rose and one being made against him

Keith Rose himself confirmed that Modem House had called the police in They ve been investigating thefts from our company since December 14 However he denied all knowledge of the second inquiry

Modem House is the trading name of Sci Tek Future Science and Technology which is being wound up under the 1986 Insolvency Act A creditors meeting was held on February 10

MicroPro launches Wordstar 4

MICROPRO has announced the release of the long-awaited new version of *Wordstar* for PC compatible micros A CP/M implementation will also be available later in the year

Fully titled *Wordstar Professional Release 4* the new product will supersede *Wordstar Professional*

The new *Wordstar* boasts over 120 enhancements over previous versions which include word counts, a 220 000 word thesaurus (for machines with over 256K Ram) line and box drawing improved speed and 40 programmable function keys

Wordstar Professional Release 4 is set for release at the end of March and will cost £458 85 (inclusive of Vat) Existing users of *Wordstar Wordstar Professional* and *Newword 3* will however be able to upgrade at £99 up to the end of July

Hubbard plays Delta

THE musical talents of Rob Hubbard can be heard on *Delta* the second title from Thalemus which scored a minor hit with *Sanxion*

Delta is a no holds barred shoot em up for the Commodore 64 at £9 99 (tape) and £14 99 (disc) It is due for release at the end of the month

Heathrow on PCW

HEWSON Software is converting two of its older programs to the PCW8256

Southern Belle, the locomotive simulation and *Heathrow Air Traffic Control* are due for release in the next two weeks, and will be able on a single 3 inch disc for £16 95

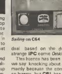
Mike Male – Heathrow author

Software Hotlines

Ever felt like trucking along the freeway with the top down and the requisite blonde in the passenger seat complete with hair blowing in the wind? Then you ought to be playing *Out Run* the latest coin-op hit from **Sega**

The great graphics and sound track has got the California dreamers queueing up around here – the same cannot be said of the latest multi-player game however The punters have given *Kick and Run* a one to four player football game from **Taito** the real thumbs down – and who can blame them with the USA rated as the best running team Maybe that should be a running joke

All the America s Cup coverage on Channel 4 depicted a great way to spend the whole of January – on a beach down under If only *Sailing* from **Activision** could simulate that



Sailing on C64

What you have to settle for, however is the most complete ocean racing simulation to date which allows you to design your own yacht then race it in competition with seventeen other nations

Written by the **DDE** programming team the sea effects are so good they ought to provide a bucket with the thing My first impressions? If you like that kind of thing – it s swell

Or should that be swill – which is how **CRL** might well describe its latest licensing deal based on the deeply strange **IPC** comic *Oink!*

This licence has been shall we say knocking about a bit mainly because the comic is so bizarre but **CRL** has been brave enough to take up the challenge

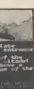
The actual game, *Rubbish Man* (out on Commodore 64 late March Spectrum and Amstrad after) will have you playing the part of Uncle Pig in which you must build up pages of the magazine collected from three sub-games each featuring an infamous *Oink* character

Delta Four is setting up a new Southampton based adventure label called **Abstract Concepts** headed by mystery woman photocopier salesperson turned author Anna Popkess

Abstract has been specifically created to provide a medium for adventures that tackle more serious issues like its first release (out March-ish) *Enchantress* (see screen shot below) in which you control the destiny of a young lass Adara who is out to avenge the death of her family – violence being one of the issues being explored here I d guess Sounds interesting

John Cook

Enchantress – the serious side of **Delta 4**



Yie Ar tops charts for 1986



MARTIAL arts have topped the annual charts for the second year running according to Gallup s compilation of the best-selling titles for 1986

While *Way of the Exploding Fist* was the runaway number one in 1985 last year s top game was Imagine s *Yie Ar Kung Fu*

1986 was a good year for Imagine the Ocean label Its *Green Beret* also appears high up in the annual chart at number four

Elite Systems notched up three out of the top ten of 1986 with *Commando Ghosts and Goblins* and *Paper boy* while Mastertronic has 11 titles in the top 30, including the evergreen *Formula One Simulator* second only to *Yie Ar Kung Fu*

The 30 best selling games last year were as follows 1) *Yie Ar Kung Fu* (Imagine) 2) *Formula One Simulator* (Mastertronic), 3) *Commando* (Elite) 4) *Green Beret* (Imagine) 5) *Thrust* (Firebird/Superior) 6) *Ghosts and Goblins* 7) *Paperboy* (both Elite) 8) *Rambo* (Ocean) 9) *Kik Start* (Mastertronic) 10) *Ninja Master* (Firebird) 11) *Winter Games* (Epyx/US Gold) 12) *Spellbound* (Mastertronic) 13) *ACE* (Cascade), 14) *Finders Keepers,* 15) *Kane* (both Mastertronic) 16) *Trivial Pursuit* (Domark) 17) *Elite* (Firebird/Acornsoft) 18) *One Man and his Droid* 19) *Action Biker* (both Mastertronic) 20) *Computer Hits 10 Vol 3* (Beau Jolly) 21) *The Last V8* (Mastertronic) 22) *Kung Fu Master* (Data East/US Gold) 23) *Speed King* 24) *BMX Racers* 25) *Vegas Jackpot* (all Mastertronic) 26) *They Sold a Million* (Hit Squad) 27) *Way of the Tiger* (Gremlin) 28) *Gauntlet* (US Gold) 29) *Dragon s Lair* (Software Projects) 30) *Undium* (Hewson)

Incidentally 1985 s number one *Fist*, was number 31 on the 1986 chart

Activision's losses increase

ACTIVISION the games software company based in Mountain View California is continuing to show a financial loss with the news that its third quarter results report a $3 9 million (£2 6 million) deficit This is despite an increase in sales from $5 8 million (£3 8 million) to $9 6 million (£6 4 million)

Apple tablet

THE Kurta IS/GS is a cordless pen plus graphics tablet add on which has been designed specifically to operate with the new Apple IIGS machine Manufactured in the US it will be sold in the UK by Techex of Ealing, London for £395

Techex also distributes Kurta s Penmouse Plus also a tablet plus cordless pen but for IBM compatible and RS232 equipped computers, at £235

Details from Techex at Meridien House 100 Hanger Lane Ealing London W5 1EZ 01-991 0121

Mirrorsoft has new strategy with PSS

THE Mirror Group better known for its national newspapers is expanding its interest in the software industry with the acquisition of a majority shareholding in PSS the strategy games publisher

PSS will now belong to the same stable as Mirrorsoft and software wholesaler Microdealer

Gary Mays co-founder and director of PSS commented that he felt little would change at the company as a result of the deal We will continue as a separate company we are keeping our offices in Coventry we re not losing any staff in fact the only real difference is that we and Mirrorsoft will be co operating in joint marketing ventures

PSS s next new titles will be *Bismarck* and *Fortress America* both of course strategy/simulations

New Amigas set to appear in June

COMMODORE S new Amigas the A500 and A2000 (see *Popular Computing Weekly* January 29) are now widely expected to be scheduled for launch at the Commodore show in June this year at London s Novotel

No specific comment was available from the company about the launch dates and the new machines will not be in evidence at next week s *Which Computer?* show where Commodore will demonstrate new business software for the current Amiga and a new range of PC AT compatible micros the PC40 series

This follows the publication of improved financial results for the company for the quarter ending December 31 1986

Commodore International reached a profit of $21 8 million (£14 5 million) on sales of $270 8 million (£180 6 million) over the three months This compares with a higher sales figure ($339 2 million £226 million) but a net loss of $53 2 million (£35 5 million) for the corresponding period in 1985

Commodore International's president Thomas Rattigan commented These results further demonstrate a profit turnaround and have contributed to a significant improvement in the company s financial position

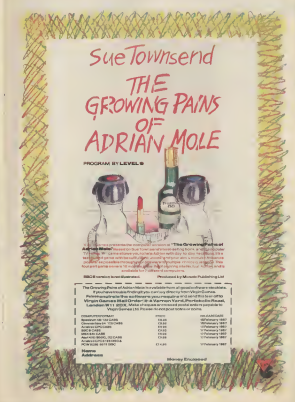
On the subject of machine sales he added Unit sales of the Amiga and IBM PC compatible computers were at the highest quarterly levels since the launch of these products with the Commodore 64C and 128 continuing to constitute the majority of our unit mix

PC Gem graphics

KUMA Computers has followed up the release of *K Spread 2* with *K Graph 2* a Gem based business graphics package for IBM compatibles but targetted specifically towards the Amstrad PC range

The program will display graphic data in the form of pie charts line and area graphs and a variety of bar graph types It will also integrate with the spreadsheet *K Spread 2*

K Graph 2 costs £49 95 Details from Kuma at 12 Horseshoe Park Pangbourne Berks 07357 4335


Sue Townsend
THE GROWING PAINS OF ADRIAN MOLE
PROGRAM BY LEVEL 9
Games presents the computer version of "The Growing Pains of Adrian Mole." Based on Sue Townsend's best-selling book and the popular TV series, the game allows you to help Adrian with day to day decisions. It's a text-based game with beautiful illustrations and your aim is to make Adrian as popular as possible through your answers to multiple choice questions. This four part game covers 15 months of the life of aspiring intellectual Adrian, and is available for 7 different computers.
BBC B version is not illustrated.
Produced by Mosaic Publishing Ltd
The Growing Pains of Adrian Mole is available from all good software stockists. If you have trouble finding it you can buy directly from Virgin Games.
Please encircle the software you require and send this tear-off to Virgin Games Mail Order, 2-4 Vernon Yard, Portobello Road, London W11 2DX. Make cheques or crossed postal orders payable to Virgin Games Ltd. Please do not post notes or coins.

COMPUTER FORMAT	PRICE	RELEASE DATE
Spectrum 48/128 CASS	£9.95	10 February 1987
Commodore 64 128 CASS	£9.95	10 February 1987
Amstrad CPC CASS	£9.95	10 February 1987
BBC B CASS	£9.95	17 February 1987
MSX 64k CASS	£9.95	17 February 1987
Atari 400/800XL/XE CASS	£9.95	17 February 1987
Amstrad CPC 6128 DISC & PCW 8256 8512 DISC	£14.95	17 February 1987

Name
Address
Money Enclosed

Star Wars licence won by Domark

DOMARK has chalked up another deal that is certain to catch the attention of the games playing public the rights to produce *Star Wars The Empire Strikes Back* and *Return of the Jedi* all multi-million dollar grossing movies as home computer games

The titles had already been released as coin-op machines by Atari (from which Domark bought the licence) and games cartridges by Parker but this will be the first time any have appeared on a home computer in the UK

Planned as a trilogy, the first release, *Star Wars*, will be based on the Atari arcades game, but modernised and refurbished for the home computer market

Said Domark's Dominic Wheatley "Although it's quite old it's a damn good shoot em up ... one of few I've actually played"

The personnel for the programming team have yet to be finalised but the primary contender is described as "a Star Wars fanatic"

Domark is also hoping to incorporate digitised speech into the home computer version – a major feature of the original The title will be released on Spectrum Amstrad CPC and Commodore 64 – and Atari ST – at the PCW show or beyond priced at £9 95 or less

Apple cuts prices amid 'open Mac' rumours

APPLE has announced a £300 price cut on its MacIntosh Plus – but is giving no reason for the unexpected generosity

However, the drop from £2 295 to £1 995 coincides with renewed rumours of the long-awaited 'open Mac' – a machine designed to be expandable in the manner of the Apple II and IBM PC

A report in the latest issue of trade newspaper *Microscope* says that Apple has been showing the new machine to dealers and tips a worldwide launch in the first week of March

Microscope lists the provision of six slots to accept expansion boards a 68020 processor (the full 32-bit version of the 68000), 4Mb of Ram a quadruple density disc drive giving 1 6 megabytes of storage a colour display in A4 size and a three box design

At various times all of these have been suggested as improvements to the Mac design But the most recent reports from the US strongly suggest that Apple would be unable to implement all of them in the next Mac

A more likely design spec would include some kind of expandability particularly for an IBM-compatible board, enhanced disc storage and possibly a larger screen

Apple watchers have scorned the idea of a colour Mac at this stage although the inclusion of the 68020 processor is a strong possibility

Microscope suggests a retail price "starting around £7 000" This, however would make the machine the most expensive in the world and Apple has already had its fingers burned with a computer with that distinction the Lisa

A more realistic price would be considerably less than £5,000

Peter Worlock

Atari bids for wider availability

ATARI UK is currently in negotiations with a number of major high street retailers to improve the availability of its machines from the newly announced 65XE upgradable games machine to the STs in larger stores

"We are talking about the Atari range being available in the high street, in Dixons WH Smith Comet Boots, Woolworths and so on by the summer We are also looking for stronger support from independent retailers," an Atari spokesman commented

He stressed however that it was early days yet and that talks would not be finalised until later this year

He also reiterated that Atari will be unveiling its Mega ST micros – 2Mb and 4Mb models – at the Atari Computer Show which begins on April 24

DIARY DATES

FEBRUARY

17–20 February
Which Computer? Show
NEC Birmingham
Details Mainly business exhibitors
Price £5
Organiser Cahners Exhibitions
01 891 5051

MARCH

20–22 March
The Electron & BBC Micro User Show
UMIST Manchester
Details Software hardware and peripherals for Acorn's micros
Price £3 adult £2 children £1 discount for advance booking
Organiser Database Exhibitions
061-456 8835

APRIL

24–26 April
The Atari Computer Show
Novotel London W6
Details First chance for Atari to show off exciting new strategy
Price £3 adult £2 children £1 discount for advance booking
Organiser Database Exhibitions
061-456 8835

MAY

2–3 May
First Ideal Microcomputer Show
Kensington Exhibition Centre
Details Software hardware peripherals for consumer users
Price TBA
Organiser RAMCO International Exhibitions 01 908 3383

8–10 May
The Electron & BBC Micro User Show
New Horticultural Hall London
Details. Software hardware and peripherals for Acorn's micros
Price £3 adult £2 children £1 discount for advance booking
Organiser Database Exhibitions
061-456 8835

Prices dates and venues of shows can vary and you are therefore strongly advised to check with the show organiser before attending *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser


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Letters

Not dead yet

With regard to Keith Alston s letter (January 29) attacking Mr Smith s letter (January 15) may I say that I too read Mr Smith s remarks and although I believe he could have been more tactful I agreed with his sentiments

I do not wish to get into one of those My machine is better than yours arguments I would just like to put a few things into perspective

Firstly you will never see MSX games in the charts as Gallup uses stores such as W H Smith and Menzies to compile its chart neither of which stock MSX games Most of the MSX software in my area is bought at specialist retailers or Woolworths (Mastertronic games), which are not on the Gallup list

True if you take the UK sales figures for MSX machines it isn t the biggest seller but *MSX Computing* last issue estimated the number to be about 250 000 units

It is the European market which encourages software houses to convert titles to MSX (US Gold Ocean Martech etc) MSX worldwide has sold far better than many are willing to admit

I class myself as a lucky owner of an MSX machine and believe the British press has never given MSX a fair hearing

Luckily for a mere £89, I can upgrade my MSX to MSX 2 specifications – the bargain of a lifetime

While MSX is being talked about it proves it isn t dead

Keith Neal
Bourne
Lincs

QL mathematics

I am a Sinclair QL owner and therefore very grateful for your support of that computer with regular publication of programs and small routines

I noted the procedure to calculate factorials in Bytes and Pieces in the issue for January 8 with interest However the author has used more code than necessary because one of the elegant features of SuperBasic is not used The ability of a procedure to call itself (recursion) can be used to advantage in calculating factorials as in the first routine appended below

But there is a price to be paid for elegance The recursive routine takes about three times as long to evaluate 300! as the one you published (six seconds vs two seconds) The second routine below is almost as economical in program space as the first and evaluates 300! at about the same speed as the published version

The upper limit for all routines is the same (300!) since 301! exceeds 1 61585E616 the maximum number for the arithmetic evaluator of the QL

W P J Baily
Purley
Surrey

```
[illegible]
```

A truly kind-hearted person

I should like to make some comments concerning your news item Public Domain libraries under threat in UK (*Popular* January 29)

I am currently involved with ICPUG (the Independent Commodore Products Users Group) whom I am writing some articles on Pascal ICPUG has an extremely good range of its own PD software which is available free to members Just send the librarian a formatted disc and return postage and packing and they will then copy the software and return it quickly (normally within a week)

There is a full range of software for all the Commodore machines the 64 and 128 in native 128 mode and in CP/M There is also a range of PC software which runs on Commodore s own PC compatibles

The articles I have written on Pascal have formed the basis of a range of PD software written in Pascal Normal ICPUG library conditions relate to the supply of this software There is absolutely no way I would charge for these discs

The whole idea of PD software is that it should be free As a programmer I would not like anyone making money from programs I had donated to a PD library

Marc Bray
Merseyside

Searching C64 musicians

I am setting up a programming team for C64 owners within my user group and am looking for talented programmers Musician programmers are greatly needed, as are graphic designers, games programmers etc

If anyone is interested in joining a programming team could they please contact me at 51 Madeley Road Havercroft, near Wakefield West Yorkshire WF4 2PJ

Stephen Butterfield
Commodore user group

Puzzle

Puzzle No 245

In the following crossnumber puzzle numbers have to be fitted into the grid Can you find the correct values for A and B ?

Across
1) A * B
4) $A^2 + B^2$
5) A^2

Down
2) B/2
3) B
4) A

1	2	3	
4			
5			

Solution to Puzzle No 240

The symbols are £ & * % + } / @ = I representing 0 1 2 3 4 5 6 7 8 9 respectively

The main clue is in the multiplication and the relative positions of the various digits By substituting letters for the symbols we get

A B C times D C E equals E A A D A

These variables are used in the *For/Next* loops in the program the resulting product being checked to determine if the various values correspond with the values currently in the loops The product is also tested to check that the second third and fifth digits are alike From this the five digits 0 1, 3 7 and 9 are identified In the text there is a two-digit date given the first digit must be a 2 since both 1 and 3 have already been identified

This leaves 4 5 6 and 8 As + plus + equals = the + can only equal 4 and the = must be 8 Therefore in the time given the double bracket which indicates the minutes must stand for 55 Only the / remains which is the 6

Winner of Puzzle 240

This week s winner is George Godman of Tewkesbury Gloucs who will receive £10

Rules

The closing date for Puzzle 245 is March 6

Answers should include a program listing if possible

```
>
10 FOR A=1 TO 9
20 FOR B=0 TO 9
30 IF A=B THEN 180
40 FOR C=0 TO 9
50 IF C=A OR C=B THEN 170
60 FOR D=1 TO 9
70 IF D=C OR D=B OR D=A THEN 160
80 FOR E=0 TO 9
90 IF E=D OR E=C OR E=B OR E=A THEN 150
100 F=(A*100+B*10+C)*(D*100+C*10+E)
110 F=F[illegible]
120 IF F<10000 OR F>99999 THEN 150
130 P$=STR$(F)
140 IF VAL MID$(P$,1,1))=E AND
    VAL(MID$(P$,2,1))=A
    AND VAL(MID$(P$,4,1))=D
    AND MID$(P$,2,1)=MID$(P$,3,1)
    AND MID$(P$,2,1)=MID$(P$,5,1)
    THEN PRINT A,B,C,D,E
150 NEXT E
160 NEXT D
170 NEXT C
180 NEXT B
190 NEXT A
```

New and unusual from Aberdeen

Up until the end of November last year HBBS 2 Aberdeen was a slowly growing bulletin board Suddenly disaster struck this small but perfectly formed bulletin board in the form of excessive heat This had a very adverse affect on this young board which had to go in to hospital for some quite drastic repair work.

Now due to absolutely no demand at all other than the abject boredom of the sysop, the board has returned with one or two small changes and a few improvements

The most noticeable change is that all the software for downloading has been changed so that it actually works now Also, there is a small registration fee for any one who is going to become a serious and regular user For normal use it costs £3 00 and if you want to try to find some useful information, the Hacker s message board costs an extra £2 00

If you want to give the board a call, it is open to any computer at all even though it is run on a severely modified but now thank goodness healthy BBC Model B The number to call is Aberdeen (0224)-832570 (7 00pm–10 00am) and the necessary settings for your computers are either 1200/75 or 300/300 baud rates with a byte setting of 8 bits no parity and 1 stop bit (8N1)

The board will be starting up fully as of March 1 1987 so please give it a call and you might make some new but very unusual friends (like me for example)

Graeme A Findlay
Sysop HBBS 2 Aberdeen

Naturally we started the bidding at £1 99

Zeus returns... again

The Zeus assembler is well written When modified (Letters January 29) the print option works in 128K mode but output goes to the RS 232 port as expected

The authors have perhaps noticed the clumsy, post-Vickers initialisation of *Chars* and taking no chances use this system variable to find the character set

This can, at times be a disadvantage if you use a custom font and forget to restore *Chars* before returning to the assembler you get locked in For instance when you press *Q* a nasty invader, or whatever grins at you and you are trapped forever

The remedy is to poke the following four bytes starting at address 63036 *17 0 60 0*, changing *LD DE (CHARS)* to *LD DE 3C00 NOP*

The screen editor will then always use the Spectrum font and in 48K mode you can list in a custom font eg bold

Always list source (V) files before running machine code as the current channel may be altered by your machine code

G Wearmouth
London N17

Correction

The observant amongst you will have noticed that block 5000 of the phone book program in the Beginners Guide to Programming is actually a replication of block 3000

To print out your telephone numbers delete lines 5000 onwards and replace them with the following subroutine

```
5000 INPUT  TYPE IN NAME  F$
5010 LET F=1
5020 IF A$(F)=F$ THEN PRINT
 TELEPHONE NUMBER
IS  T$(F) GOTO 5050
5030 LET F=F+1 IF F<101 THEN
GOTO 5020
5040 PRINT  NAME NOT FOUND
5050 FOR F=1 to 400 NEXT
F RETURN
```

Readers move en passant

Move 11 has now been completed in Game One of our Readers vs *Colossus* chess tournament with the Readers playing black voting to move the pawn on e4 to d3 (en passant)

Colossus playing white has replied by taking the same pawn with its knight from e5

Over to you

Now we need your suggestions for the next Readers move Send your suggested move to *either* Inter-Mediates (*Popular* Chess) Freepost, Sawbridgeworth Herts CM21 9YA (you do not need to use a stamp with this address), *or Popular* Chess Unit 2 The Maltings Sawbridgeworth Herts CM21 0PG (with a stamp) Freepost is slower than normal mail so if you want to save money on stamps post your entry promptly

Entries must reach either address by Wednesday February 18

The move which gets the most votes will be entered into the game Results and *Colossus* s response will be published in two week s time

Prizes

A British Museum reproduction Arran chess set will go to the person suggesting the most accepted moves at the end of the game Five copies of *Colossus Chess 4* (available for most popular micros) will go to the most consistent entrants for the duration of the game

Next week we return to Game Two where the Readers are playing white

Game One

The moves so far

1	Pe2–e4	Pe7–e5
2	Ng1–f3	Nb8–c6
3	Bf1–c4	Ng8–f6
4	Nf3–g5	Pd7–d5
5	Pe4xd5	Nc6–a5
6	Bc4–b5+	Pc7–c6
7	Pd5xc6	Pb7xc6
8	Bb5–e2	Ph7–h6
9	Ng5–f3	Pe5–e4
10	Nf3–e5	Bf8–d6
11	Pd2–d4	Pe4–d3 (en passant)
12	Ne5xd3	?

No such socket

I d like to answer Mr Dawes letter in *Popular* January 29 First of all *none* of the STs existing in Europe today are fitted for the forthcoming new chips from Atari When Atari introduced the 1040STF rumours had it that there was an empty socket in the machine for the blitter chip

There is no such socket in the current 1040STF but Sam Tramiel has said that there *will be* a socket in the future 1040s It will however, be possible to upgrade the old STs because the blitter will come in two versions one in a DIP packaging (for sockets) and one for piggy backing onto the 68000 processor in the current STs

The much awaited AMY sound chip from Atari will be available as a plug in cartridge that will go into the hard disc port As far as I know both of these upgrades will be possible on *all* STs

It s hard to say anything about the 68020 second processor The new Mega STs will be able to handle it without too much trouble I remember Sam Tramiel saying that adding the 68020 to the current STs is a messy affair which can be done but is not recommended

Then again was the one megabyte piggyback upgrade for the 520 STs recommended by Atari? The new Mega STs with the open bus will of course be able to handle any conceivable add on

Kristian Rosenvold
Atari ST user group of Norway

Evesham Micros

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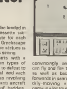
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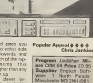
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Leviathan: bigger and better





At first glance *Leviathan* looks like *Super Zaxxon,* which is a pity because it s a squillion times better

Taking the *Uridium*-style concept of scrolling back grounds and fierce opponents to new and dizzier heights *Leviathan* features great music and sound effects by David Whittaker, along with stylish design and programming by English Software s in-house team

There are three landscapes to explore each so complex that they have to be loaded in separately from cassette taking about a minute for each new load The Greekscape with its impressive statues is particularly worth seeing

Each stage starts with a display of the ten types of baddies you have to defeat to complete the level and each landscape features revolving radar vicious anti aircraft projectors lots of baddies fuel cubes, landing strips and some nice perspective and sprite priority work

Your fighter flips and spins convincingly and since you can fly and fire to either side as well as backwards and forwards in search of the rapidly-moving enemy this game is a lot tougher than any similar shoot em up

Think you're clever because you've finished *Uridium?* Just try this one!

Popular Appeal ♦ ♦ ♦ ♦
Chris Jenkins

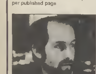
Program *Leviathan* **Micro** CBM 64 **Price** £9 95 **Supplier** English Software 1 North Parade Manchester M3 2NH (061 835 1358)

Get writing – get Popular

Popular Computing Weekly always welcomes contributions from its readers for articles features and program listings

Whether you want to write articles see your programming masterpieces in print, pass on some words of wisdom, or simply let off steam there s space in the magazine for you

Ideas for **feature articles,** or completed articles, should be sent to Christina Erskine All aspects of home computing are considered but we cannot feasibly accept anything longer than 2,000 words, so brief is best It s worth checking by phone or letter first that your article will be suitable Payment is normally £35 per published page



Technical editor Duncan Evans looks after the **program listings,** and articles on programming We rely on you for our Programming section so earn yourself a place in the *Popular* Hall of Fame (and £25 for each page we print) by having your program published Even if it s not 100s of K of pure machine code, but a short snappy routine thee may well be a place for it in **Bytes and Pieces** (£10 a shot)

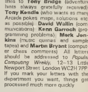
Articles on any aspect of programming are also welcome – with short listings included if relevant

Got something you feel needs saying oud and clear? Your opinions on any aspect of the computer industry are welcomed, so why not write in to the **Ziggurat** section? No more than 600 words, please If published, we ll pay you £15

So maybe it s not the money you re after, but you d just like to have some say in the magazine

For shorter comments, general observations or queries there is of course the **Letter page,** with the tempting offer of a year s supply of *Popular* binders for the Star Letter each week

Left. the adventurous Tony Bridge
Right: the active Tony Kendle



For more specific points our team of columnists are always willing to answer questions, and keen to hear the latest information Drop your lines to **Tony Bridge** (adventure hints always gratefully received) **Tony Kendle** (who wants as many Arcade pokes maps, solutions etc as possible) **David Wallin** (communications) **Kenn Garroch** (programming problems) **Mark Jenkins** (music queries and sample tapes) and **Martin Bryant** (computer chess comments) All letters should be addressed to *Popular Computing Weekly,* 12–13 Little Newport Street London WC2H 7PP If you mark your letters with the department you want, things get processed much more quickly



Not such a hard guy

You know it from the cover this is one hell of a urine extraction! Who cares who wins! it says Butch makes Ram** look like Mary Poppins Or should that be M*ry P*pp*ns?

Anyhow by giving you the cover lines I've spared you the need to buy the game because they're by far the best thing about it And I don't care if Butch comes round and rips out my gizzard for saying so

Butch Hard Guy is a simple platforms and combat game with only two blows You have to thump the robots in the wallet then kick them in the head Seems they've got glass jaws as this causes them to explode You then ascend the platforms hitting kicking and dodging until you've smashed all of the cages containing the POWs before you're off to the next screen

It's all very competent but never anything more than that As a budget game it would be okay but compared with *Cobra* – which also looks a less than serious approach to Sly Stallion – it's positively bone headed

When the going gets tough Butch gets going, the blurb warns you He should have gone a lot further if he wanted to appear in a half decent game!

Popular Appeal ♦ ♦ ♦

John Minson

Program *Butch Hard Guy* **Micro** Spectrum 48K/128K **Price** £7 45 **Supplier** Advance Software Ltd 17 Staple Tye Harlow, Essex CM18 7LX

It could be a scene straight out of Apocalypse Now – your Apache gunship comes streaking over the jungle canopy dodging to avoid ground-based machine gun fire

Off to your left a SAM missile battery is tracking you and a string of radar-controlled anti-aircraft guns is coming up fast

You're low on fuel but there's just enough to see the mission through And your target a supply depot is in your sights when bang! You take a hit and your forward fuel tank ruptures

No explosion but only a few minutes fuel left What now Ace?

This is the kind of scenario that awaits you every time you boot up *Gunship* the latest and greatest simulation from US hotshots Microprose

Gunship puts you at the controls of an AH-64A helicopter affectionately known as the Apache and this thing really flies

You've got laser tracking radar and infra red warnings and jammers rockets missiles chain guns and the amazing computer control weapons system *Gunship* gives you it all

Start as a rookie sergeant on your first training flight in the US then move on to the soft combat option – Vietnam where your enemies are historically armed so your Apache gives you the edge

After that it gets tougher all the time – Central America the Middle East and finally the hypothetical confrontation against the Russians in Western Europe the toughest opponents of all

Within each combat scenario you have the choice of three levels of opponent and three levels of mission Regular missions are the easiest volunteer jobs are risky and volunteer hazardous is near suicidal

Successful missions at succeeding levels of difficulty earn you promotions campaign ribbons and medals with your ultimate ambition to reach Colonel and win the Congressional Medal of Honour

Missions are assigned randomly and if it looks too tough you can chicken out by going sick But you'll get a reprimand and promotion will be harder thereafter

Before the mission you can check an on screen map and read an intelligence briefing on the kind of opponents you'll encounter You can also modify the fuelling and armament of your Apache The scene then switches to the landing pad From then on you're on your own until you touch down again

The actual flight simulation is superb Controls are very responsive and the animated

The Fist strikes again

Let's *Fist* again like we did last summer and autumn spring and winter! *Fist*, *Yie-Ar Kung Fu International Karate* and the rest – have the combat games bludgeoned you into submission?

To beat the boredom factor *Fist II* has to be something a bit special because about the only martial art that hasn't ended up on the computer is championship tickling But despite their rather dodgy Egyptian entry into the cash in stakes *(Fighting Warrior)* Melbourne House has redeemed itself with the official *Fist* sequel

Fighting Warrior boasted a minimal plot in the land of the pyramids but not enough to stop it getting swamped by quicksand *Fist II* has added a proper quest and suddenly all that head kicking and instep stomping has an aim other than satisfying sadistic desires

There are lots of screens to get lost in which is quite easy because there's not much to distinguish one Japanese catacomb from the next and the same goes for their deserts and houses But there does seem to be a lot of the Land of the Rising Sun in your RAM from its caves to mountain plateaux

Now have you got the scrolls? No my pixels always walk this way! Actually it's a double-edged question because not only does the screen scroll but you're in search of scrolls which contain trigrams These oriental symbols can be used in various mysterious ways but it's up to you to find out how No Tourist Information bureaux in this game but you could find some cryptic clues by praying at a shrine where you'll also regain strength

If all this plot sounds like it might be keeping you from the real business in hand — ie knocking the stuffing out of some nasty ninja – don't worry They crop up all over the place though not so repetitively as in *Fighting Warrior* and each of the five human types has different strategies There are also big black pussy cats but don't try stroking them – nine out of ten panthers prefer *Fist* fighters for lunch!

The combat works fairly well though the scrolling has to freeze and this can cause problems if a large amount of the screen is taken up by a foreground object obscuring the action There's also a slight problem when you force your opponent to the edge of the screen He can vanish into the masking and sometimes seems to freeze letting you knock him into oblivion

Fist II isn't perfect but it puts a lot of the kick back into an old genre Go to it little grasshopper!

Popular Appeal ♦ ♦ ♦ ♦

John Minson

Program *Fist II* **Micro** Spectrum 48K/128K **Price** £8 95 **Supplier** Melbourne House 60 High Street, Hampton Wick Kingston Upon Thames, Surrey KT1 4DB

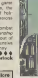
Blown away!

view out of the cockpit is detailed colourful and smooth

When you land you're rated on your mission Taking too long counts against you as does shooting friendly troops Do well and you ll win that first medal and maybe a promotion

Gunship s presentation is flawless Weapons systems are realistic (the chopper bucks when you fire) there are day and night missions, wind factors to take into account and there are graphic scenes for important events – medal presentations or crashes

The accompanying manual is over 80 pages long and



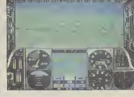
includes a full guide to game controls flight controls, the theory and practice of helicopter flying and discussions of weapons and tactics

When it comes to combat flight simulators *Gunship* blows everything else out of the sky Yes it s expensive but it s worth every penny

Popular Appeal ◆ ◆ ◆ ◆ ◆
Peter Worlock

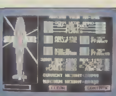


Program *Gunship* **Micro** Commodore 64/128 **Price** £19 95 (disc), £14 95 (cassette) **Supplier** Microprose Software 2 Market Place, Tetbury Glos GL8 8DA



Above main playing screen for Gunship Below right the armament screen Below left the hero returns to base





Apache performance

It s unfortunate for the C64 version of *Tomahawk* that it arrived at the same time as *Gunship*. A few weeks ago I would have rated it highly Alas no longer

Despite the name *Tomahawk* is another Apache simulator and although pretty good in its own right it suffers in comparison with *Gunship* in just about every department

For example the animation is noticeably jerky the graphics are nowhere near as detailed or as colourful and it lacks all of *Gunship* s dressing up – no mission briefings no chance to tailor your weapon load no promotions or medal ceremonies

Tomahawk is more of a game in terms of combat – three hits and you re dead In *Gunship* hits are likely to knock out various systems or one hit from a missile might take out your rotors immediately

Unfortunately *Tomahawk* doesn t actually play any better It is easier to fly and to get into combat in the early stages but you are limited to three scenarios capture four map sectors capture all map sectors or support ground troops – although there are four levels of difficulty

Overall *Tomahawk* lacks the overwhelming sense of realism that makes *Gunship* so outstanding It is five quid cheaper than the Microprose offering but it also looks five quid cheaper

Popular Appeal ◆ ◆ ◆
Peter Worlock

Program *Tomahawk* **Micro** Commodore 64/128 **Price** £14 95 (disc), £9 95 (cassette) **Supplier** Digital Integration Watchmoor Trade Centre, Watchmoor Road, Camberley Surrey GU15 3AJ

Digital Integration s Tomahawk



Follow the stainless steel road

Tony Bridge reviews two new adventure games Satan's Servants on the Spectrum, and the latest from Asclepios on the Amstrad CPC

Satan's Servants. That really makes you sit up and take notice, doesn't it – it's short and sweet but to the point and grabs you by the adventure-playing parts. And it's also the name of a new two-part adventure from a new author, K Marshall. Surprisingly for a new story, this one isn't (obviously) *Quill'd*, which says a lot for the author's determination.

The aim of the game, which is available for the Spectrum, is simple – all you have to do is to defeat the evil Akra and his pets (the servants, naturally) and thus retrieve your book of magic before he uses it to turn the world into darkness.

These servants come in several sizes of yecch, including giant crabs, gargoyles coming to life, gremblies, zombies, Pirate Jack, laughing heads (David Byrne, I presume) and other friendlies including, shock horror, hairy acid-gobbling frogs, and you'll get your chance to do battle with each and every one of them.

The mechanics of the game are simple really, explore the landscape, pick up objects and use them in your fight against the creepies, the crawlies and finally against Akra himself. The pictures, which may be turned off, are nothing special (imagine an artist who failed the Level 9 interview and you've got the idea) but they are quickly drawn and are rather neat.

The dreaded multiple-word input can be used, which means that you can say things like *Up the steps and then go North*, which is unusual for a home grown adventure – but you must be careful with your typing finger, the usual first four letters of a word will be recognised (and sometimes three or even two) but type a fifth letter incorrectly, and the program refuses to recognise the input.

Help isn't recognised or given, but examining most objects will give a more or less outright clue as to its use, so the player shouldn't be stumped for too long. The biggest problem is actually surviving long enough to use the object, many of the tight situations are time related, and you must make the exact number of moves in exactly the right sequence in order to escape the immediate consequences of your blundering.

The pricing of this one is interesting, although bearing in mind that the adventure is a two-parter and that there is a lot to do, the original price of £7.50 was still much too high. The author tells me that this price was arrived at on the advice of local retailers.

However, I'm glad to see that K Marshall has thought twice about all this and set a new price of £4.50, which includes Postage and Packaging. This will be further reduced to just £3.60 on the production of this Corner. For two adventures, it's a steal!

To be perfectly frank *Satan's Servants* is not the most original of adventures, the puzzles are given away too cheaply by the program itself, the graphics are hardly stunning, and the scenario has been done a zillion times before. But for all this, I have a great deal of admiration for one adventure writing system.

There is quite a good atmosphere created by the text, although the location description are generally rather short and I feel that a bit more imagination applied to the basic storyline might pay vast dividends. In fact, I'm told that a second story is already in production – let's hope that this will be even better.

Available from K Marshall, at PO Box 19, Redcar, Cleveland TS10 2YS.

From a non *Quill*'d adventure to a *Quill*'d adventure on the Amstrad CPC from Asclepios Software. Of course, *you'll* know who Asclepios is, but I had to resort to the instructions to this one, wherein I am told that old Asclepios is the Greek god of healing. Lee Foard, who is Asclepios Software, tells me that he chose the name because it gives an atmosphere of being really laid back and peaceful (maybe Neil Software would be a good choice next time).

The story really starts with the accidental release of a deadly virus on a colony planet some 500 years ago. The resulting 12 million infected people were rounded up, shoved in a spaceship and shoved off in the direction of the planet Segastra. Unfortunately, things go wrong (don't they always?) and everyone dies on the way – meanwhile, the robots assigned the task of preparing the planet get ideas above their station and decide to conquer the universe in the disease-ridden spaceship. It's your task to stop them.

The game itself is quick, thanks to *The Quill*, and there is a fair amount of atmosphere as you explore the planet and meet the robotic population. There are lots of objects to pick up, though their use is not immediately apparent and you are given no obvious clues. There are quite a number of interesting images, including stainless steel rivers (roads to you) which suddenly bend up towards the sky, and a new system of measurement which includes micronds and decironds.

The puzzles are fairly straightforward, or at least straight ahead (solve this one and then solve the next one) rather than circuitous, and this shows a lack of imagination – but the whole thing is fairly humorous and for the asking price of £1.20 is going to help you while away several hours (and *I* don't want to hear from you if you stay up all night and solve it in one sitting, there's certainly more to *Robocide* than that!). Asclepios Software is at 84 Stavordale Road, Carshalton, Surrey SM5 1BX.

Adventure Helpline

Three Weeks in Paradise on Amstrad CPC6128. How do you sharpen the blunt axe, if at all? How do you use the bottle and corkscrew? T Snell, 89 Sweetman's Road, Hill Farm Estate, Shaftesbury, Dorset SP7 8EH.

Questron on Atari. Where is the trumpet and how do I get it? Ian Brooker, 163 Verity Crescent, Canford Heath, Poole, Dorset BH17 7TX.

Mindshadow on Atari 800XL. How do you steal the car at the airport? I have the car ID. Darren Fradgley, 95 Bulkington Road, Oxford OX4 1QU.

Sphinx on Electron. I can't find the boat or the mithril ring – have tugged a lot of hair up to now! Stephen Mellor, 139 Langlee Drive, Galashiels, Selkirkshire TD1 2EA.


21st CENTURY WARRIOR:
Apache GUNSHIP
MICRO PROSE

Searching for Mr (word) Perfect

Above Fig 1 shows the new modes menu Below Fig 2 consults the dictionary

When looking at *Locoscript* for the first time, it was obvious that it lacked three major features – a mail merge facility, a word count and a spelling checker

The first was corrected with *Locomail* – and now the last two gaps have been filled in with *Locospell*

Far from being released in a blaze of glory, *Locospell* seems to have almost slipped out – although Amstrad/Locomotive targeted the audience well by contacting PCW owners by mail and offering the package as soon as it was finished

Now it's generally available and here at *Popular* it's been greeted with open arms by those individuals who always talked in the back of class during English Language lessons

In operation, it's as simple as you could hope for. You boot up using the new *Locospell* disc, which includes *Locoscript* version 1 4, containing an extra 8K of code for the *Locospell* facilities

It also has on it 68K of specially selected dictionary made up of 32 000 words. This is automatically copied to the memory drive

You create/edit documents as usual, but on pressing *f7* a new modes menu appears that gives you the option to check spelling (see Fig 1)

The program will now go through the document and stop at a word it doesn't recognise – suggesting a replacement word or giving the users a number of other options (Fig 2), including the opportunity to consult the dictionary itself if you are hopelessly lost

"In operation, it's as simple as you could hope for. You boot up the Locospell disc, which includes Locoscript version 1 4"

Here the word is displayed at the head of a drop down menu, with a selection from the dictionary displayed in the body of the window (Fig 3). One particularly useful feature is the ability to simply construct User Dictionaries of uncommon words that are not included in the 32 000 word job (or the 77 000 one found on side B of the disc) but you find yourself using for your own particular needs

Finally, at the end checking a word count will be given the dictionary from the floppy together with the option of updating the User Dictionary if you have added any new words in that session

Locospell is an excellent program – although it does have a couple of drawbacks, the major one being speed. Around three and a half minutes for a thousand word document is not fast, and that's using the large dictionary on the memory drive, an option not open to unexpanded 8256 owners who, in order to use it, must copy the document to memory and run – slow

But for all that, it is fully integrated with the word processor you are likely to be most used to working with, *Locoscript*, and very easy to use

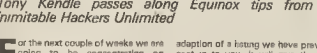
If you are serious in using your PCW for writing, this program will spot those embarrassing spelling mistakes and typos that you so often kick yourself for after the event. So unless you're Mr Perfect – it's invaluable

John Cook (Mr Imperfect)

Fig 3 the dictionary itself

Double-checking at the end

The beginning of the end



Tony Kendle passes along Equinox tips from the inimitable Hackers Unlimited

For the next couple of weeks we are going to be concentrating on another very welcome letter from our regular and invaluable correspondents Hackers Unlimited – Julian ET Lyndon Smith and Suggs Johnston

It's a slight change of form from their usual contributions in that the bulk of the letter consists of tips rather than pokes but the pokes that are there are essential!

Here is our complete guide to completing *Equinox* on the Amstrad The guide is intended to be used with our poke that not only gives you more punch but also prints a room number at the top right hand corner of the screen This is an adaption of a listing we have previously sent in to you It will give the player infinite thrust and infinite laser charge as well as the room number

For those that aren't familiar with hacker's tricks finding infinite lives pokes can be fairly easy if you look for the familiar routines that most program mers used to count lives etc Trying to find obscure parts of the program such as that which counts the room numbers can be much more of a challenge and a slog

The pokes with maps and tips for the remaining *Equinox* levels will be run next week In the meantime save this page – it will come in handy!

Anyone who can come up with a similar collection of pokes for the Spectrum version will earn undying gratitude

The guide to the game will take the player step by step through each of the eight levels of *Equinox* with the exception of the first level which you have already printed the solution for

Please note that the player must follow the guide strictly – if any instruction is ignored it may mean that the particular level will not be completed in the required time Owners of other computers may be able to use the map and clues that are given here – but we don't know if the game play will be the same I think it should be

Level Three

```
32--33    34
 |    |    |
 |    |    |
35--36    37
 |    |    |
 |    |    |
36--39--40
 |
 |
41--42--43
      |
      |
44--45--46
 |
 |
46
```

1· Get key in room 35 and unlock door in 45.
2· Get fuse in 46 and turn off beam in 32
3 Get credit in 32 and pay teleporter in 47
4 Teleport from 47 to 36
5 Get radiation canister from 34 and deposit in 44 (do not teleport!!)
6 Teleport from 47 and get the level 4 pass from room 37.
7 Go to room 43
8: Proceed to level 4.

Level Four

```
48--49    60    51--52
 |         |     |    |
56--57--58--56--60

53--54--55
 |         |
61--62--63
```

1: Get the credit in 63 and pay the teleporter in 54
2· Get the credit in 62 and pay the teleporter in 54
3 Get fuse in 61 – teleport from 64 to 46
4 Get the drill in 48 Leave the fuse
5 Teleport from 48 to 54
6 Drill the obstruction in 55 and get the dynamite
7 Teleport from 54 to 46.
8 Blast the blockage in 56 and get the credit
9 Pay the teleport in 57 and teleport to 60
10 Get the radiation canister from 58 and deposit in 45
11 Get the fuse from 49 and teleport from 57 to 50
12. Turn off the beam in 51 with the fuse.
13 Get the level 5 pass from 60
14 Teleport from 46 to 54
15. Go to 63
16: Proceed to level 5.

Charts

Top Twenty

1	(1)	Gauntlet	US Gold
2	(3)	180	Mastertronic
3	(3)	Paperboy	Elite
4	(9)	Ollie and Lisa	Firebird
5	(5)	Ninja	Mastertronic
6	(4)	Konami's Coin-op Hits	Imagine
7	(6)	Footballer of the Year	Gremlin Graphics
8	(7)	BMX Simulator	Code Masters
9	(6)	Computer Hits Vol 3	Beau Jolly
10	(16)	Space Harrier	Elite
11	(12)	Trivial Pursuit	Domark
12	(10)	Hit Pack	Elite
13	(–)	Fist II	Melbourne House
14	(–)	Pro Snooker	Code Masters
15	(11)	Five Star Games	Beau Jolly
16	(13)	Agent X	Mastertronic
17	(–)	Speed King 2	Mastertronic
16	(17)	They Sold a Million (3)	Hit Squad
19	(14)	Jailbreak	Konami
20	(15)	Scooby Doo	Elite

All figures compiled by Gallup/Microscope



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Draw your own conclusions with Eidersoft

Duncan Evans trades in his mouse for a Pro Draw Graphics Tablet

For many professional artists and CAD users using a mouse as a drawing tool with their ST is simply not good enough Something like a graphics tablet is required for greater accuracy

This can be used in either of two ways first by simply replacing the mouse with a stylus or more usefully by enabling drawings placed on the tablet to be accurately traced and represented on screen

The Pro Draw graphics tablet from Eidersoft has a nine by six inch drawing area and comes supplied with software wedge stylus power supply and interface

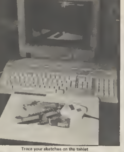
Connecting all the equipment up is perfectly straightforward with the mains transformer supplying power via a lead going into an interface connected to the serial (marked as modem on the ST) port The very same interface has a lead coming out which connects up to the graphics tablet On the underside of the tablet is a socket into which the stylus or puck can be plugged and also a detachable ergonomic aid

Unlike most graphics tablets in the home computing market Pro Draw is not a pressure sensitive pad but of the more expensive and professional electro-magnetic type Indeed the stylus can be as much as two inches away from the tablet s surface before contact is lost

The design of the tablet is such that it can cope with screen resolutions up to 1000 pixels square so if the ST undergoes a graphics upgrade then Pro Draw will be of even greater value Also, should you trade in your ST in the future then you should be able to use the tablet with other computers if they have the required software to drive it

Resolution up to 1000 pixels square

Speaking of software the program supplied with Pro Draw is not a graphics package in itself, but a wedge in the form of an installable desk accessory or a directly executable program which can be used to route all official Gem mouse


Trace your sketches on the tablet

calls to the stylus instead

So, you ll need a graphics package as well and the choice is between going for one that Eidersoft has arranged to be made specifically compatible or trusting to luck and hoping that the program you ve bought uses official Gem calls

If you re thinking about using Pro Draw with *Neochrome* which is supplied free with the ST then forget it While using the stylus is an acceptable replacement for the mouse *Neochrome* will not trace the outlines of drawings on your tablet with any accuracy or to scale

in fact after using Pro Draw with a copy of the specially configured *Art Director* (available from Eidersoft) and comparing the results obtained with those from unadulterated copies of *Neochrome Degas Elite Art Director* and *Easy Draw* I have to say that you d be better off with the former

Eidersoft is in fact having discussions with a number of companies to produce specifically compatible versions of its programs including one from West Germany called *ST AD* which promises to be well worth looking at

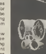
In order to get the best from the stylus your drawing skills have to be up to professional level otherwise you re just wasting your time However there is an optional extra called the puck a sort of mouse-like device with cross hairs in the centre of a magnetic coil which is much easier for the less talented, including myself to get to grips with It will cost you an extra £59 95 though

The probable market for Pro Draw is in professional and educational fields or maybe the enthusiasts and well off amateur

I say well off because the packages retails at £299 excluding Vat and *Art Director* and the puck are an optional blow to the pocket However comparable products on the Macintosh and IBM weigh in at around £450

If you re serious about drawing or art then this tablet should be one pill that isn t hard to swallow

Product *Pro Draw Graphics Tablet* **Micro** Atari ST/Amiga **Price** Atari £299 ex Vat Amiga £313 ex Vat **Supplier** Eidersoft Software The Office Hall Farm N Ockendon Upminster Essex RM14 3QH


More accurate than a mouse

Rockfall

Craig Davenport

The premise of Rockfall is simple. All you have to do is collect the 16 diamonds on each screen without being squashed by the rocks. Unfortunately it's not that easy as the route to success on some of the screens is torturous to say the least. Still the excellent multicolour graphics should keep you coming back for more.

First type in listing one and when error free save it. As this routine contains a short machine code routine for the game, problems like diagonally falling boulders will probably be caused by errors in listing one.

More of the listing two follows in the coming weeks.

```
50 PRINT"J" PRINT"  PLEASE WAIT!!! "
500 AD=12286 X=0
510 READ A IFA=-1THEN600
520 POKEAD+X A X=X+1 GOTO510
600 AD=49152 X=0
610 READA IFA=-1THEN6000
620 POKEAD+X A X=X+1 GOTO610
1000 DATA60,102 110,110 96,98 60 0,24,60 102 126,102,102,102 0
1001 DATA124 102,102,124,102 102,124 0,60,102,96 96 96 102 60 0
1002 DATA120 108,102 102,102,108 120,0 126 96,96,120,96,96,126,0
1003 DATA126 96,96 120,96 96,96,0 60 102 96 110 102,102 60 0
1004 DATA102,102 102 126,102 102,102,0 60 24,24,24 24,24 60 0
1005 DATA30,12,12,12 12,108,56 0 102 108 120 112,120 108 102,0
1006 DATA96 96,96 96,96,96,126,0 99,119 127 107,99 99 99,0
1007 DATA102 118,126,126 110 102,102 0 60,102 102,102 102 102,60 0
1008 DATA124 102,102 124,96,96 96,0 60 102 102,102,102,60,14,0
1009 DATA124,102 102,124,120,108 102,0,60,102 96 60 6 102,60,0
1010 DATA126 24,24 24,24 24 24,0 102,102,102 102,102 102,60,0
1011 DATA102,102,102 102,102 60 24 0 99 99 99,107 127 119,99 0
1012 DATA102,102,60 24,60 102,102 0 102,102 102 60 24 24,24 0
1013 DATA126 6,12,24 48 96 126 0,60 48 48,48,48,48 60,0
1014 DATA12,18 48 124 48 98,252,0,60,12 12,12,12,12,60 0
1015 DATA0 24,60,126 24,24,24,24,0 16 48 127,127 48 16 0
1016 DATA0 0,0 0,0,0 0 0,24,24 24 24 0,0 24,0
1017 DATA102,102,102,0,0,0,0 0,102,102 255 102 255 102 102,0
1018 DATA24,62,96,60,6,124,24 0 98,102 12 24,48,102 70,0
1019 DATA60,102 60 56,103 102,63,0,6 12,24 0 0 0,0,0
1020 DATA12,24 48,48,48,24 12 0 48 24 12 12 12 24 48 0
1021 DATA0,102,60 255,60,102 0,0,0 24,24 126,24,24 0,0
1022 DATA0 0,0,0 0,24,24,48,0,0 0,126 0,0 0 0
1023 DATA0 0,0,0 0 24 24,0,0,3 6,12,24,48 96 0
1024 DATA60 102,110 118,102 102,60 0 24 24 56,24 24 24,126,0
1025 DATA60,102 6,12 48 96 126 0 60 102,6,28 6 102 60,0
1026 DATA6,14 30 102,127,6 6 0 126,96 124 6,6 102,60,0
1027 DATA60 102 96 124 102 102,60 0 126 102 12,24,24,24 24,0
1028 DATA60,102 102,60,102 102,60 0,60 102,102,62,6 102,60,0
1029 DATA0 0,24 0 0 24 0,0,0 0 24 0 0,24,24 48
1030 DATA14 24,48,96 48 24 14 0 0 0 126,0,126 0,0,0
1031 DATA10,42 47 175,159,183,131 131 169 171,45,45,43 11 10,2
1032 DATA122,160,232,248,20,126,126 94,94 126 126,122 248 232,224 160
1033 DATA0 2,15 13 61,58 246 214,214 246,55 61,13,15,2,3
1034 DATA128 128 240 112,124 92,159 151 151,159,92 124,112 240,192,192
1035 DATA254,254,254,170 239 239 239,170 63,240 255 60,255,255,207,252
1036 DATA255 255 195 195 195 195 195,195 195,195,195 195 195 195 255 255
1037 DATA195,195 195 195 195 195,195,195 36,60 60 24 126,24 36 102
1038 DATA12 31 51,63 31 15,0 63,63 3,3 7,14 12,12,28
1039 DATA48 248 204 252 248 240 192 252 252 192,192 224,112 48 48 56
1040 DATA252,192 192 224 112 52 60 24,0,0,0,0 0,0 0 0,-1
2000 DATA160,0 162 255 189 213 6 201 62 240 13,201 63 240,9 201
```

```
2001 DATA64 240 5 201 65,205,25 214.141.0 201.189.252,6 201 [illegible]
2002 DATA206,14 169,[illegible] 157,213.6 173.0 200 157 253.6,234,234 2[illegible]4
2003 DATA202 224,255 205 207 200 192 4,240 15 206 6 132.206 29 1[illegible]
2004 DATA206 38 1[illegible] 206.44 192 76 2,192 169 6.141 [illegible] 192 141,29
2005 DATA132,141 [illegible] 132.141 44 192.36 255 255 0 0 255 255,0.0
2006 DATA255,255 0 0,255,2,0 0 255.255 0.0 255 255.0,0 -1
6000 POKE 631.78 POKE632.69 POKE633,67 POKE634,1[illegible] POKE635,76 POKE636.111
6010 POKE637.13 POKE638.82 POKE639,117 POKE640.13 POKE198 10 END
```


Microdrive Label

J V Monks

With this program it is possible to print up to a dozen titles each with 19 characters using an Epson compatible printer

The number of names depends on the line spacing which is controlled by the second *Chr$* in line 220 (2 in this case) If the 2 is changed to 3 the number of titles is reduced

The size of the printing is also dependent on the size of print before using this program Good results are obtained from power up but better ones are obtained starting from *Elite* style

```
100 CLS:AT 19,7:PRINT  *** GOOD LABELLING ***
110 REMark LABEL PRINTING PROGRAM FOR THE SINCLAIR Q.L. BY JOHN MONKS
120 AT 1,5:PRINT; LABEL MAKER FOR MICRODRIVES
130 AT 3,1:PRINT HOW MANY TITLES ON THIS LABEL ?  ;:INPUT x
140 IF x<1 THEN GO TO 130
150 AT 5,9:PRINT; INSERT LABEL INFO
160 REMark NAMES CAN HAVE SPACES OR OTHER CHARACTERS
170 FOR i=1 TO x
180 PRINT i,;
190 INPUT P$
200 OPEN#4,ser1
210 PRINT#4,CHR$(27); S ;CHR$(0)
220 PRINT#4,CHR$(27); A ;CHR$(2);
230 PRINT#4,P$
240 NEXT i
250  CLS
260 PRINT#4,CHR$(27); T ;CHR$(27); 0 ;:CLOSE#4
270 REMark LINE 260 RESTORES PRINT TO NORMAL
280 PRINT  WOULD YOU LIKE TO PRINT MORE ? \\ "Y" OR "N" :INPUT A$
290 IF A$<> Y  OR A$ > y  THEN CLS
300 IF A$= Y  OR A$= y  THEN CLS: GO TO 100
```


Compacter

Dean Lester

This program will compact *Basic* programs and speed execution up by removing all Rem lines completely empty lines (eg with only a colon) unnecessary spaces and all variables used with the *Next* keyword, at the end of a *For-Next* loop

The assembler program should be typed in and run If the checksum is correct then the program saves the machine code in a file called Comp

Or you can send a blank cassette and £2 00 to D Lester 38 Priestman Point Campbell Road London E3 3EY

```
10REM ******** COMPACTER *********
20REM *         for BBC           *
30REM *       and Electron        *
40REM *      by Dean Lester       *
50REM *                           *
60REM *****************************
70:
80:
90CLS
100PROCdefine
110PROCassemble
120PROCchecksum
130END
140:
150:
160DEFPROCdefine
170*KEY100..M*FX12,2:M:NL.:M
180total%=0
190lk=&70
200pt=&72
210lkf=&74
```

Programming: BBC

```
220ptf=&75
230tl=&76
240th=&77
250ct=&79
260page=PAGEDIV256
270ENDPROC
280:
290:
300DEFPROCassemble
310FORpass=0TO2STEP2
320P%=&900
330[OPTpass
340.start
350LDA#0:STAlk:STApt
360STAlkf:STAptf
370LDA#page:STAlk+1:STApt+1
380JSRky
390.loop
400LDYlkf
410LDA(lk),Y
420CMP#13:BNEa:JSRcy:JSRib
430JSRcy:CMP#255:BNEc:JMPend
440.c
450JSRib:JSRcy:CMP#255
460BNEel:JMPend
470.el
480JSRtn:JMPloop
490.a
500CMP#32:BNEv:JSRsc:JMPloop
510.v
520CMP#&F4:BNEs:JSRrem JMPloop
530.s
540CMP#34:BNEkk:JSRcy:JSRqt:JMPloop
550 kk
560CMP#&ED:BNEb:JSRcy
570JSRib:JSRxt:JMPloop
580.b
590LDYptf
600STA(pt),Y
610JSRib
620JMPloop
630 py
640JSRcy:JSRcyl1:JMPloop
650.ib
660JSRicpt
670JSRiclk
680RTS
690.iclk
700LDYlkf:LDA(lk),Y:STA&70
710LDAlkf:CLC:ADC#1:STAlkf
720BCCicret:INClk+1
730.icret
740RTS
750 icpt
760LDAptf:CLC:ADC#1
770STAptf:BCCptret:INCpt+1
780.ptret
790RTS
800.cy
810LDYlkf
820LDA(lk),Y
830LDYptf
840STA(pt),Y
850RTS
860.tn
870JSRib:JSRcy
880STAct
890LDApt+1:STAth
900LDAptf:STAtl
910JSRib:LDA#200:STA&78:LDYlkf:LDA(lk)
,Y
920CMP#58:BEQrem:RTS
930.sc
940LDA&78:SEC:CMP#170:BCCbe:JSRiclk:JM
Ptq
950.be JSRiclk:LDYlkf:LDA(lk),Y:SEC:CM
P#128:BCStq
960.ps LDA#32:LDYptf:STA(pt),Y:JSRicpt
:RTS
970.tq LDYct:DEY:STYct
980LDAct:LDX#0:STA(tl,X):RTS
990.end
1000LDA#21:JSR&FFEE:LDX#0
1010LDY#128:LDA#&3A:JSR&FFF4:RTS
1020.qt
1030JSRib:JSRcy:CMP#34
1040BNEqt:JSRib:RTS
1050.cyl1
1060JSRib:JSRcy:CMP#58
1070BEQrr:CMP#13:BEQrr:JMPcyl1
1080.mm
1090SEC:LDAptf:SBC#1
1100STAptf:BCSrr:DECpt+1
1110.rr
1120RTS
1130.rem
1140JSRmm:JSRmm:JSRmm
1150JSRmm:JSRskl1:RTS
1160.skl1
1170LDAlkf:CLC:ADC#1
1180STAlkf:BCCss:INClk+1
1190.ss
1200LDYlkf:LDA(lk),Y
1210CMP#13:BNEskl1:RTS
1220.xt
1230LDYlkf:LDA(lk),Y
1240CMP#13:BNEyt:RTS
1250.yt
1260CMP#58:BEQwe:JSRsc:JMPxt
1270.we
1280RTS
1290.ky
1300LDX#txMOD256
1310LDY#txDIV256
1320JSR&FFF7:RTS
1330.tx
1340EQUS"KEYOREN.|M|F|G|M"
1350EQUB&0D
1360]
1370NEXT
1380ENDPROC
1390:
1400:
1410DEFPROCchecksum
1420FORx%=&900TO&A6A
1430total%=total%+?x%
1440NEXT
1450IFtotal%<>&9000PRINT"Checksum incor
rect.Please check listing.":VDU7:STOP:EL
SEPRINT"Checksum correct." "OK to save c
ode as COMP file (Y/N)?"
1460A$=GET$:IFA$="Y"PROCsave:ELSEENDPRO
C
1470ENDPROC
1480:
1490.
1500DEFPROCsave
1510PRINTTAB(0,12)"Now saving code...";
1520*SAVE COMP 900 A6A 900
1530PRINT:PRINT
1540ENDPROC
```

Programming: Spectrum

Scroll Routine

R J Wilkinson

This is a scroll routine for the Spectrum with a difference. It will allow the user to scroll upwards from any line by any amount of lines (not exceeding the bottom of the screen of course) pixel by pixel, extremely quickly.

To save the machine code enter *Save Scroll Code 30000 107* and to use it on its own enter *Load Code (start address) Poke (start address + 2 start line Poke (start address + 3) number of lines*

Don't forget to use *Clear (start address −1)* before you load the code though. Also, on no account must numbers greater than 127 be poked in.

```
10 REM SCROLL ROUTINE BY
 RJ WILKINSON 1987
20 CLEAR 29999: LET START=30000
30 FOR F=START TO START+106
40 READ A: POKE F,A: NEXT F
50 LET A=START: LET TOT=0
55 FOR F=1 TO 107
60 LET TOT=TOT+PEEK A+PEEK (A+1): LET
A=A+1: NEXT F
70 IF TOT<>24024 THEN  PRINT  BRIGHT 1
;"  ERROR IN DATA PLEASE CHECK   " : L
IST 200: STOP
75  SAVE "SCROLL" LINE 10
80 PRINT #1;AT 0,1;"ALL OK PRESS A KEY
 FOR DEMO": PAUSE 0
85  INPUT "LINE START ";L: IF L<0 OR L
>21 THEN  GO TO 85
90 INPUT "HOW MANY LINES ";A: IF A<1 O
R A>21 THEN  GO TO 90
100 POKE START+2,L: POKE START+3,A
110 PRINT AT 0,0;: FOR F=33 TO 255: PRI
NT CHR$ F;: NEXT F: FOR F=33 TO 33+118:
PRINT CHR$ F;: NEXT F
120 FOR F=0 TO 21: RANDOMIZE USR START:
 NEXT F: GO TO 85
187
188 REM ####################
189 REM #                  #
190 REM #   DATA FOR M/C   #
191 REM #                  #
192 REM ####################
193
200 DATA 24,2,0,21,197,221,225,221,126,
3,254,0,40,62,79,221,126,2,129,254
210 DATA 22,240,221,126,2,245,121,245,6
,2,221,126,2,221,119,2,205,158,14
220 DATA 229,122,60,16,245,209,225,6,8,
197,1,32,0,235,237,176,1,224,0,9
230 DATA 235,9,193,16,240,241,254,0,40,
10,61,254,0,40,5,24,207,60,24,191
240 DATA 221,126,2,205,158,14,6,32,229,
197,6,8,62,0,119,36,16,252,193,225
250 DATA 35,16,241,241,221,119,2,201
```

Programming: Amstrad CPC

Info

Richard Garforth

This *RSX* takes the file header extracts the useful information and displays them on the screen. These are in order user number full name file type start address length of file execution address and end address.

The syntax for the command is *Info filename*.

The numbers will all be displayed in hexadecimal.

```
100 MEMORY &9FFF:MODE 2:PRINT"A000 ";
110 FOR point=&A000 TO &A1DA
120 READ a$:IF LEN(a$)=4 THEN GOSUB 200
130 byte=VAL("&"+a$)
140 tot=tot+byte
150 POKE point,byte
160 PRINT HEX$(byte,2);" ";
170 NEXT point
180 SAVE"info",b,&A000,&400:CALL &A000:P
RINT:PRINT"|info initialised"
190 END
200 chk=VAL("&"+a$):IF chk<>tot THEN PRI
NT"ARRRGGGH";CHR$(7):STOP
210 PRINT ";";a$:PRINT HEX$(point,4);" "
;:READ a$:tot=0:RETURN
220 END
230 DATA 21,13,A0,01,D9,A0,C3,D1,BC,0E,A
0,C3,17,A0,49,4E,46,CF,00,00,07A2
240 DATA 00,00,00,FE,01,CD,3A,9B,BC,FE,D
F,C2,D8,A0,DD,6E,00,00,66,01,09F6
250 DATA 46,23,5E,23,56,EB,CD,77,BC,D2,F
A,A0,22,CC,A0,7E,CD,A9,A0,CD,0886
260 DATA D3,A0,23,D6,0F,7E,CD,5A,BB,23,1
0,F9,2A,CC,A0,CD,D3,A0,2A,CC,0A03
270 DATA A0,11,12,00,19,7E,CD,A9,A0,CD,D
3,A0,2A,CC,A0,11,15,00,19,5E,07E3
280 DATA 23,56,EB,22,00,A0,CD,A4,A0,CD,D
3,A0,2A,CC,A0,11,18,00,19,5E,097D
290 DATA 23,56,EA,22,CC,A0,CD,A4,A0,CD,B
3,A0,11,1A,00,2A,CC,A0,19,5E,097D
300 DATA 23,56,EB,CD,A4,A0,CD,D3,A0,ED,5
B,CE,A0,2A,00,A0,19,CD,A4,A0,0C2F
310 DATA CD,7A,BC,C9,7C,CD,A9,A0,7D,32,C
B,A0,0F,0F,0F,0F,E6,0F,CD,64,0A30
320 DATA A0,3A,CB,A0,E6,0F,FE,DA,F2,C5,A
0,E6,30,CD,5A,BB,C9,E6,37,CD,0C04
330 DATA 5A,BB,C9,00,00,00,00,00,00,00,0
0,3E,20,C3,5A,BB,3E,2C,21,FD,059C
340 DATA A0,11,40,00,CD,A1,BC,21,FD,A0,2
2,CC,A0,11,10,00,19,7E,CD,A4,0975
350 DATA A0,2A,CC,A0,CD,B3,A0,C3,41,A0,C
3,7A,BC,00,00,00,00,00,00,D813
360 DATA 00,00,00,00,00,00,00,00,00,00,0
0,00,00,00,00,00,00,00,00,0000
```

We want your programs!!

Yes, this is your chance to get rich and famous. Well famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

What sort of thing are we looking for? You name it – anything original from games to utilities, applications and the like, written in Basic, machine code or anything else you can think of.

Programs for any computer will be considered, not just the old faithfuls (Spectrum, Amstrad, QL, Commodore etc) so send those listings in. What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over 2000 words.

Alternatively, send in your short programs to the Bytes and Pieces page – what could be easier?

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Memory Fill

Adam Wright

This routine for the Commodore 64 allows you to fill a specified area of memory with a specified byte. This could be useful for filling colour memory or removing data.

The syntax is *Sys 49152 start address, number of bytes to be filled byte to be filled with*

```
0 REM MEMORY FILL
1 DATA 32 [illegible]
2 DATA [illegible]
3 DATA [illegible]
4 DATA [illegible]
5 DATA [illegible]
6 DATA [illegible]
7 DATA [illegible]
8 DATA [illegible]
9 DATA [illegible]
10 DATA 164,21,96
15 MF=49152:CK=0:FOR A=MF TO MF+[illegible]
20 READ D:POKE A,D:CK=CK+D:NEXT [illegible]
30 IF CK [illegible] THEN PRINT "ERR[illegible]
40 SYS MF,55296,1000,1
```

Spectacular Clear

Simon T Goodwin

This relocatable machine code routine for the Amstrad CPC machines provides two novel ways of clearing the screen.

Call address produces a shutter effect.

Call address+16 produces a fade out effect.

```
10 address=HIMEM-56:MEMORY HIMEM-57
20 FOR n=address TO address+55
30 READ a$
40 POKE n,VAL("&"+a$)
50 NEXT
60 'CALL address+16 FOR FADE-OUT EFFECT
70 'CALL address     FOR SHUTTER EFFECT
80 '
90  DATA 21,00,C0,01,FF,3F,3E,00
100 DATA 77,23,0B,78,B1,20,F7,C9
110 DATA 11,FE,08,7B,07,07,07,5F
120 DATA 21,00,C0,01,40,00,7E,A3
130 DATA 77,23,10,FA,0D,20,F7,15
140 DATA 20,E9,C9,00,00,00,00,00
150 DATA 00,00,00,00,00,00,00,00
```

Restore Extend

Chris Horton

This program for the C64 extends the limited *Restore* command so that the user can specify which line the data pointer is to be pointed at.

The syntax is *Sys 49152 line no*

The routine occupies memory from 49152 to 49294.

```
[illegible]
... THEN PRINT "ERROR IN DATA"
[illegible]
16 DATA [illegible]
17 DATA [illegible]
18 DATA [illegible]
19 DATA [illegible]
[illegible]
```

Programming Spotlight

This is a new feature for the programming pages of *Popular Computing Weekly* where programs which would normally have to be rejected simply because of their length are detailed with a screen shot or dump included and offered by the author for sale to you the reader. Programs featured in this spot become the copyright of *Popular* and also we pay a nominal sum of £10.

Singlestep

R M Wilkinson

This handy Spectrum utility enables the user to step through a machine code program one step at a time examining the results in the various registers and memory locations changing them if necessary. All 102 undocumented instructions are handled and single registers are represented in binary.

For a copy of Singlestep and full working instructions send £2.50 to R M Wilkinson, Programming Spotlight, *Popular Computing Weekly* 12–13 Little Newport Street London WC2H 7PP





with Kenn Garroch

How to drive a disc

A Brooks of Brighton Sussex writes

Q I have always wanted to know, and you seem to be the best person to ask: how does a disc drive work?

A A disc drive works in a similar way to cassette tape. The major difference is that the disc is flat and the data is stored on concentric tracks which makes it easier to get at. The disc is coated in magnetic sensitive film which stores the data as a series of north and south pole sections corresponding to zeros and ones. Each track is split up into sectors magnetically — usually ten per track with 40 or 80 tracks per side of the disc depending upon the density (single and double). The density of the drive depends on the number of steps the read/write head can make across the disc. The more tracks there are the finer the control needs to be and hence the more expensive the drive is.

The disc is read or written to by means of a head which contains an electro magnet to magnetise sections for writing and sense the polarity for reading. The head is mounted on an arm that moves across the surface to pick out the individual tracks. This arm is moved by a stepper motor which moves the arm in precise amounts.

On most systems, track zero is found by moving the head as far out as it will go. This position is designated track zero. The sectors are then defined by means of a hole near the centre of the disc. When this hole is picked up by means of a light detector shining through it sector zero can be defined. On Commodore drives this hole is not used hence the possibility of using both sides of a disc simply by cutting another write protect notch and turning the disc over.

When a format command is issued to the drive track and sector zero are found and information relating to the start and end of each sector is written to each track. Once this is done a directory is set up which contains the name of the disc and the positions of the free sections all of them at format time.

Once formatted the disc operating system reads and writes the disc according to the directory which for each file contains the name and track/sector locations of any information relating to that particular file.

Discs come in three main sizes 35 40 and 80 tracks each track having 10 sectors. Normally 40 track discs hold about 200K bytes of data so each track will have 5K and each sector 512 bytes. Sometimes you may see disc drives rated with an unformatted capacity which is greater than the formatted capacity. This is because some of the space on the disc is taken up with the format information and directories etc.

Disc drives are essentially a simple method of quick storage of computer data and are unlikely to be replaced by any other system for some time.

Cheaper communications

C I Chan of Fratton Portsmouth writes

Q I have two BBC microcomputers and I wish to link them allowing communication from one to the other via a pair of telephone wires. Could you please advise me if it is possible to use the RS423s for this purpose?

Is there any existing software or article about this type of network? It is preferable to the very expensive Econet system since it should be so much cheaper.

A It is quite easy to do what you propose although you will need a cable of at least five cores to connect the two. To start with get two BBC RS423 type Din plugs (available from Maplin Electronic Supplies) and connect the following lines together.

Wire	BBC1	To	BBC2
1	Data out		Data in
2	Data in		Data out
3	RTS		CTS
4	CTS		RTS
5	Gnd		Gnd

See page 406 of the User Guide

Once this is set up the following program running on both machines should show you the basics.

```
10 *FX 2,2
20 *FX 8 3
30 *FX 7 3
40 A%=138 X%=2
50 IF ADVAL ( 1)>0 AND ADVAL
(-3) 0 THEN Y%=GET CALL &FFF4
60 *FX 2 1
70 IF ADVAL(-2)>0 THEN VDU GET
80 *FX 2 2
90 GOTO 40
```

Line 10 sets up the system to read the keyboard and enable the RS423 to receive characters sent to it. Lines 20–30 set up the transmit and receive speeds to 300 baud. If you want to go faster then refer to page 424 of the *User Guide*.

Line 40 sets up the parameters for a **FX or OSByte &FFF4*) call to insert a character into the RS423 output buffer. Line 50 checks the keyboard buffer (*ADVal (−1)*). If this is greater than 0 then there is a character waiting to be processed. This is then transferred to the RS423 output if there is room in the output buffer (*ADVal (−3)*) via the *OSByte 138* call (see page 433 of *User Guide* RS423 out is buffer No 2).

The **FX 2 1* in line 60 allows the *Get* statement to read directly from the RS423 input. Line 70 does exactly this if there is a character waiting there to be read (*ADVal (−2)*). The *VDU Get* is a quick way of printing to the screen the character read with *Get*. **FX 2 2* in line 80 resets the system to read from the keyboard and line 90 repeats the loop.

Using this program on both machines will allow simple transfer of information via the keyboard and screen. A more sophisticated system can be arranged along the same lines.

Note that this will only support one computer talking to one other. More than this will confuse the RS423 and you would need some electronics to decouple the computer from the lines when it is not using it and also to sense if the system is in use.

I don't know of any articles that cover this subject but other readers might. However the above program should give you somewhere to start experimenting.

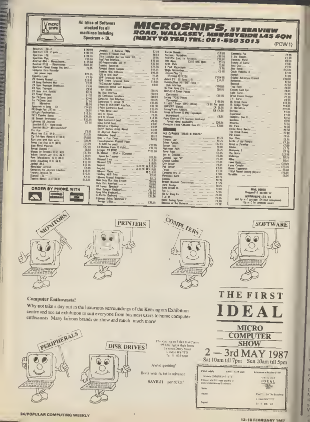
Two in one

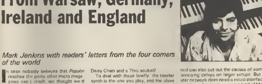
M Hewson of Reading Berkshire writes

Q I have an MSX computer and have been using it with a colour TV. Recently however, I have decided that I would like to use a colour monitor and a friend who is getting rid of his Commodore system has offered to sell me his 1901 monitor at a very reasonable price. The trouble is that the 1901 has two video inputs on the back whereas the MSX has only one output. Would it be possible to connect the two together and if so, how?

A The Commodore output signal is split into two parts colour information and straight B&W video signal. The MSX however puts out a composite signal ie, colour and video combined. What you need to do is take the composite signal from your MSX and feed it into both colour and video inputs on the monitor at the same time. This should give you a perfect colour picture.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW,* 12-13 Little Newport Street, London WC2H 7PP


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From Warsaw, Germany, Ireland and England

Mark Jenkins with readers' letters from the four corners of the world

In case nobody believes that *Popular* reaches the parts other micro magazines can t reach we thought we d start this week with some readers letters from all over the world

Jerzy Zawadzki from Warsaw wants to know which synths and accessories he should choose to make up a good music system with a Commodore 128 which he s been using for six months Wisely he s thinking in terms of the Casio CZ 101 as a basic synth

The Casio has the advantage of a good software base for editing and Patch storage using software from Joreth and others It also works well with the Casio RZ 1 sampling drum machine the SZ 1 sequencer (although Joreth s step or real time software packages are probably a better bet here) and the new drum pad kit and interface which will allow you to play drum beats live or program them as part of a Midi sequence

I don t have any information sheets on the Casio equipment here but you can contact them at the address below for info on any of these products

Over to Germany and Angus Irons has written in to ask if Tommy Software of Frankfurt has a UK distributor yet Tommy markets the Music 32 composer for the Atari 520 ST which we reviewed a few weeks ago and in fact don t seem to have UK representation But I have established that you can order its products by mail in deutschmarks or dollars (at 1 8 DM to the dollar) that they ll charge 10 DM postage and that all orders have to be pre-paid

On to Northern Ireland where Mark McBride is looking for Atari 520ST music software suitable for use with a Casio CZ3000 their splittable polyphonic synth As we know from reviews over the last few weeks there are excellent Atari sequencers from Hybrid Arts (Syndromic Music will deliver them by mail) including *EZ Track* and *SMPTE Track* and from Steinberg (*Pro 24* and a beginner s version with built in sampled drum sounds) and from Take Note, the *Dr T* software series

Back home to Bishop s Stortford and D Harrison who has a Ram Music Machine and a Casio CZ101 and is thinking of getting a CZ230S But how should they be connected together? What is a Slave and a Master what is a Daisy Chain and a Thru socket?

To deal with these briefly the master synth is the one you play, and the slave synths are the ones that are connected to it or to a sequencer which it programs The slaves can be keyboardless expanders since you only have one pair of hands to play a keyboard with A daisy chain is a series of keyboards connected together via the Midi Thru sockets which pass on all the incoming Midi information to the next synth

MASTER SYNTH — midi out — Figure 1 — midi in — SLAVE

MICRO — in / out — Figure 2 — out / in / thru / in — MASTER SYNTH — SLAVE SYNTH

SLAVE — SLAVE — SLAVE — in / in / in — Figure 3 — MICRO — in / out / in / in / out / in — SLAVE — SLAVE — MASTER SYNTH

That doesn t mean to say that all synths in a chain will be doing the same thing Because they can be set to any one of 16 Midi 'channels they can be playing any one of 16 patterns which can be transmitted via Midi simultaneously or doing nothing if they re set to a channel on which no activity is occurring

The alternative to a daisy chain is a star network which can be used if some of your synths don t have Thru sockets, and can also cut out the causes of some annoying delays on larger setups But a star network does need a micro interface with lots of outputs or some kind of Midi selector box

In Figure 1 a master synth controls a slave module and they ll play the same notes provided that the slave is set to look at the Midi channel which the master is transmitting on

In Figure 2 a master synth programs notes into a micro sequencer which then plays them back The master synth plays any notes on its channel and ignores the rest – the information also goes from the Thru socket to the slave synth which plays notes on its channel and ignores the rest

In Figure 3 a master synth programs a micro which then plays back the master synth and six expander slaves all set to different channels – this is a star network

J G Hobley of Lichfield has just bought a Yamaha DX27 its full size splittable FM synth and would like to link it to a C64 and choose a suitable drum machine You can now buy a C64 interface from Steinberg Datel Joreth or C Lab among others and all these companies have their own software except Datel (the cheapest interface at the moment) My favourite package is C Lab *Master Tracks* at around £100 but Steinberg s *Pro 16* has a Scorewriter option if you re interested in printing out your music All these are rather expensive but the cheaper Siel and Jellinghaus software is now unavailable in the UK

As for drum machines you can synchronise any sort of Midi drum machine (starting with the Roland TR505 at £249) from a properly interfaced micro and may be able to sync cheaper non Midi drum machines depending on which interface you choose

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Party time, party line in the USA

Ben Knox tells you how Compuserve can put you in touch with computer enthusiasts all over the world

Yesterday I went to a party. The party was held in the USA. To be precise, it was held in New York. It was also held in San Francisco, Chicago, Miami, London and Amsterdam.

It sounds like some kind of international pub crawl, but in fact the party was an electronic one. The partygoers all had one thing in common: they were logged on to the 'CB Simulator', a part of the huge Compuserve Information Service which is based in Columbus, Ohio.

The CB Simulator allows anyone who is a member of Compuserve to 'talk' to any other member, alone or in groups, by typing messages in at their keyboard – wherever they are in the world.

> *"The first thing that strikes you when you get into a US system is its size – Compuserve offers upwards of 400 different services"*

Computer information services (or utilities) are very big business in the United States. Compuserve is the largest system, with some 350 000 members. Others include The Source, People-Link and Delphi. All these systems display information in the Ascii scrolling text format. This is different from the format used by Prestel here in Britain, which is called viewdata.

It is relatively easy for British communications enthusiasts to access these American services. In the same way that the international telephone network allows telephone users in different countries to talk to each other, computer networks enable computers to link up across country boundaries.

British Telecom's network is called Packet Switch Stream (PSS). To access a state-side system, you simply dial up the telephone number of your nearest PSS exchange. Then, after entering your ID, you type in the network address of the system you want to use.

After a few seconds you will be in contact with the system. It is much cheaper to use PSS to make an international computer call than dialing direct by telephone. A telephone call to the US will cost up to £60 per hour. A PSS call costs about £10 per hour. On top of these costs, you will have to pay the time charges associated with the services you are calling.

The first thing that strikes you when you get onto a US system is its size.

Compuserve runs on some 40-odd DEC mainframe computers. It has upwards of 400 different services. These range from special interest groups (or forums) for different computers and software, through electronic mail, to the CB Simulator.

The forums are the place to go if you're looking for help with your computer, or if you want to download software.

Each forum has a number of areas. There is a messaging section, data libraries, a noticeboard and a CB-style conference section.

The more popular forums have many hundreds, or thousands of members. Many of them are very knowledgeable and are more than willing to help sort out other users' problems.

Questions and answers are left in the message sections. If you leave a question, then it is a good idea to check into the forum regularly. Otherwise you might find the reply is quickly overwritten. The IBM forum can have 500 messages available at once and messages get overwritten every two or three days.

The data libraries are the place to look for software. In them, you will find hundreds of public domain and shareware programs available for you to download. If you do a lot of downloading of programs, you should try and contribute to it. British users have rather a bad reputation on US systems, because they tend to make lots of downloads, but never upload anything.

You can contribute, either by uploading some British software (only public domain or shareware) or taking an active part in the messaging section of a forum. This extra usage will cost you money (though Compuserve switches off its time charge when you are uploading). But, you are getting a great deal of quality software for very little cost, so a few pounds spent on public relations shouldn't hurt too much.

Most forums use their CB facilities for regular weekly meetings where users can get to know each other.

Sometimes special CB conferences are arranged, where personalities are available to answer questions from users. Barry Manilow was once a guest on the rock music forum. There have also been astronauts in the space forum, sex therapists in the human sexuality forum and well known journalists in the journalism forum.

The most active area of Compuserve is the CB simulator itself. CB is similar in concept to Chatline on Prestel's Micronet 800.

Compuserve's CB offers many facilities. For example, in keeping with the radio based namesake, it has channeled 36 of them in total. Up to 20 people can comfortably communicate on each channel. Any more, and it gets difficult to follow conversations.

Some channels are reserved for particular interests: channel one is the adult channel, 17 is for teenage users, and 36 is for people who want to communicate seriously.

> *"Sometimes, special CB conferences are arranged where personalities are available to answer questions from users on specialized topics"*

Two users can go into private talk mode, where no one else can look in on what they are typing to each other.

Additionally, for private group chats there is a scramble mode. Only those people who have entered the same password can talk to each other.

You can keep an eye on what is happening on other channels using the monitor function. With the monitor, you can read the messages being sent on up to two channels, plus the one you are currently tuned into.

There are two drawbacks with Compuserve. First, it has quite high connect time rates – (between £5 and £15 per hour, plus PSS charges). Second, the company seems to be very wary of taking on subscribers from overseas.

Anyway, if you want further information, contact Compuserve Information Service, 5000 Arlington Centre Boulevard, Ohio 43220, USA.

Next week we'll look at other US databases, and what they offer.

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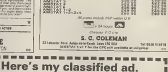
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Pick of the week

John Cook looks through this week's new arrivals

Amiga

Program *Balance of Power* **Type** Global Strategy **Price** £39 95 **Supplier** Mindscape via Mirrorsoft Maxwell House 74 Worship Street London EC2 2EN

Conversion from the awesome Macintosh program we reviewed a few months ago It s difficult to explain how good this program is

Played out on a map of the world I ve never got off Beginner Level yet still find it difficult to take in the vast amount of information the program puts at your disposal

It s Russia vs America in global macropolitics with the object to score prestige points from your opponent and expand/consolidate your sphere of influence

I preferred the hi-res mono graphics on the Mac but this is a faithful conversion and is still one of those programs any serious games player cannot be without

Amstrad CPC

Program *Imagination* **Type** Adventure **Price** £1 99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

See Spectrum listing for comment

Program *Feud* **Type** Arcade Adventure **Price** £1 99 **Supplier** Bulldog Mastertronic 8–10 Paul Street London EC2

Excellent little title that has you fighting against another wizard Collect the herbs zap the villain And is there a journalist in the world that could resist the line *Feud* glorious *Feud*?

Program *Battlefield Germany* **Type** Strategy **Price** £12 95 (tape) £17 95 (disc) **Supplier** PSS 452 Stoney Stanton Road Coventry CV6 5DG

The latest addition to the PSS Wargamers Series starts with a frighteningly plausible build up scenario in the instruction manual based on an Iranian led Jihad against Israel This causes a superpower confrontation that mobilizes forces on both sides culminating in a Russian invasion of West Germany

The system and implementation look good so play it now if you have the inclination You won t have time to if it happens for real

Program *The Growing Pains of Adrian Mole* **Type** Bookware **Price** £9 95 **Supplier** Virgin Games 2/4 Vernon Yard Portobello Road, London W11 2DX

See Spectrum listing for comment

Program *Agent Orange* **Type** Arcad/Strategy **Price** £8 95 **Supplier** A&F Argus Press Software Victory House Leicester Place London WC2H 7NB

Can you succeed in the quest to find the ultimate weedkiller? Yes, I know it sounds silly but actually *Agent Orange* isn t bad

A nice mixture of strategy requiring a fair bit of planning (or is that planting) and the expected amount of violence

Well worth taking a look at if only to give credence to the excuse I ve got a bit of weeding to do in the Outer Spiral Arm next time you re asked to mow the lawn

Best defence

Program *Defender of the Crown* **Type** Strategy/Arcade **Micro** Commodore Amiga **Price** £45 95 **Supplier** Mindscape via Mirrorsoft Maxwell House 74 Worship Street London EC2 2EN

Overkill annoys me How often do you read This game is the most completely fabby thing ever so go out and mug a granny to buy this, teenagers!!! only to find out in a retrospective a few months later that Oh yeah – I think we overrated *Alien Genocide* at the time

Still there but for the Grace of God, eh – yet when I tell you that *Defender of the Crown* has the bestest, most wonderful, most detailed graphics of any game ever, in the history of the whole world rest assured that I am resting my right hand on cartloads of Holy Tomes (Bibles Korans etc) I am sitting on as many Mother s graves as could be conveniently accommodated in the office my left hand is over my heart and I recite the Cub s Law even as I write *Defender of the Crown* completely takes your breath away

Mindscape call it Cinemaware even suggesting that you eat popcorn while playing the game – and there gives a hint to its virtues and its faults

The game has strategy and arcade elements as you play the part of a Saxon Lord who has vowed to overthrow the evil Norman conquerors He can do this by campaigning with his army – carefully built up as you buy extra troops with revenue from land you conquer or with loot from daring smash and grab raids on other castles

You can joust for land against other Lords – or just for the fame Besiege castles – fight for the hand of a fair lady It s great fun and visually stunning time after time

Don t expect a complex economic/wargame however – the massed minds of *Popular* soon found a way of winning the game fairly easily but as a showpiece for your Amiga – go go go! (For those mind blowing colour screen shots – see next week s Adventure Supplement)

Atari ST

Program *Skyfox* **Type** Arcade **Price** £24 95 **Supplier** Long Acre Covent Garden London WC2E 9JH

Electronic Arts conversion that should be thought of as a colourful shoot-em up rather than a flight simulator For the latter go and grab *Strike Force Harrier*

C16/Plus 4

Program *Storm* **Type** Arcade **Price** £1 99 **Supplier** Mastertronic, 8–10 Paul Street London EC2

The first *Gauntlet*-style program available for the C16 Unless you know different that is

Program *Molecule Man* **Type** Arcade **Price** £1 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

3 D style arcade adventure in a race against time Contains bombs radiation and useful coins Just like real life really

Commodore 64

Program *10th Frame* **Type** Sports Simulation **Price** £9 99 (tape) £14 99 (disc) **Supplier** US Gold Units 2/3 Holford Way Holford Birmingham B6 7AX

Program *Hyperbowl* **Type** Arcade **Price** £1 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Conversion of previous *Pick of the Week* a space-age penny football par excellence On the 64 the graphics are as you might expect superior – but the vector algorithms aren't quite up to the same standard

Yet with one or two player and 10 different ship types to choose from it's still a great buy

Program *The Vikings* **Type** Arcade **Price** £9 95 **Supplier** Status Software Creative Sparks Distribution Unit 811 Armstrong Mall Southwood Summit Centre Southwood Farnborough Hampshire GU14 0NP

Another release from Status Creative Sparks full price label – licence from the Danish company Kele Line

Quite simply this game is not up to full price quality – with the interference the sprites cause elsewhere on the screen as Exhibit A m lud

Essentially a *Commando* variant with some adventure elements bolted on I can immediately think of two budget games (*Feud* and *Super Robin Hood*) that would do you just as well Not good

Program *Cyber 1* **Type** Arcade **Price** £2 99 **Supplier** Super Sparklers Creative Sparks Distribution Unit 811 Armstrong Mall Southwood Summit Centre Southwood Farnborough Hampshire GU14 0NP

This is more like it – a multi-level budget blast Again from Kene Line but the title screen also mentions a certain Elite Systems as joint copyright holders and the name Cyborg crops up in the header and second level Work that one out if you can

Program *Agent Orange* **Type** Arcade **Price** £8 95 **Supplier** A&F Argus Press Software Victory House, Leicester Place London WC2H 7NB

See Amstrad CPC listing for comment

Program *The Mystery of the Lost Sheep* **Type** Adventure **Price** £4 00 (mail order only) **Supplier** Central Computing 61 Beech Road Gillway Tamworth Staffs B79 8QQ

Program *The Sport of Kings* **Type** Simulation **Price** £2 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

A day at the races for up to 5 players – agreeable rainy afternoon material also ideal after a heavy session down the pub

Program *Magic Madness* **Type** Arcade Adventure **Price** £7 95 (tape) £9 95 (disc) **Supplier** Anco Software 35 West Hill Dartford Kent DA1 2EL

Program *Olli and Lissa* **Type** Arcade **Price** £1 99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

Fairly standard jumpy jumpy collect the objects arcade style game with a touch of humour that raises it above par It's been in the Spectrum charts for five months – if that means anything

Program *Imagination* **Type** Adventure **Price** £1 99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

Program *The Growing Pains of Adrian Mole* **Type** Bookware **Price** £9 95 **Supplier** Virgin Games 2/4 Vernon Yard Portobello Road London W11

See Spectrum listing for comment

Program *Aliens* **Type** Arcade/Strategy **Price** £9 95 **Supplier** Electric Dreams 31 Carlton Crescent Southampton SO1 2EW

This week sees the arrival of the delayed Commodore 64 version of the celebrated game of the movie Delayed because they didn't like it the first time so they wrote it again The final result is excellent highly recommended fare for the understressed

MSX

Program *Winter Events* **Type** Sports Simulation **Price** £9 95 **Supplier** Anco Software 35 West Hill Dartford Kent DA1 2EL

Six simulated snowy sports for 1–4 players The Bobsled section gets an immediate nomination for the PCW *Winter Games – never heard of it guv* award (1987) for contributions to the collective unconscious

PC and Compatibles

Program *Office Sweet* **Type** Spreadsheet **Price** £17 99 **Supplier** RS Associates Dale House Dale Street East Ashton-Under Lyne Lancs OL6 7TE

Primarily a budget spreadsheet program – but with a text editor and a few macro-style commands

Spectrum

Program *Little Alien* **Type** Arcade Adventure **Price** £1 99 **Supplier** Sparklers Creative Sparks Publishing Unit 811 Armstrong Mall Southwood Summit Centre Southwood Farnborough Hants GU14 0NP

Program Sutch Hard Guy **Type** Arcade **Price** £7 95 **Supplier** Advance Software 17 Staple Tye Harlow, Essex CM18 7LX

Harmless mickey-take of the *Rambo/Cobra* style games with an element of platforms and ladders thrown in

Program *Agent Orange* **Type** Arcade **Price** £8 95 **Supplier** A&F Argus Press Software Victory House Leicester Place London WC2H 7NB

See Amstrad CPC listing for comment

Program *Feud* **Type** Arcade Adventure **Price** £1 99 **Supplier** Bulldog Mastertronic 8–10 Paul Street, London EC2

Spectrum 128/ Plus 2

Program *Little Computer People* **Type** Pet Simulation **Price** £9 99 **Supplier** Activision, Activision House 23 Pond Street London NW3 2PN

The program that charmed Commodore users now reaches the Spectrum Plus 2 There is no denying that it doesn't look quite as cute on this format but all the major features are there

Program *The Kingdom of Krell* **Type** Graphic Adventure **Price** £9 95 **Supplier** Anco Software 35 West Hill Dartford Kent DA1 2EL

Icon driven adventure for the 128/Plus 2 Looks interesting look out for a review soon

The search for perfect software

The astonishing advancement in hardware power over the last five years is of benefit to every potential user as the specifications rise and the prices drop but one notable aspect of this situation is how little the standard of software has risen in relation to the computers themselves

In the days of the ZX81, just before its demise and subsequent replacement by the 16K Spectrum the software had achieved a high standard to the extent that we had high resolution graphic arcade games utilising every nibble of memory

I can honestly say that since those days I have not seen a single item of software that utilises the potential of the machine to an absolute maximum

With the public acceptance of downmarket budget software even a simple wire graphic arcade game such as *Elite* can be admired for its supposed high standards of graphics

At the other extreme there has been a form of hardware snobbery where we are looked down on for using a machine that is not deemed to be state of the art

As a programmer writing software for vertical applications I was required to produce a program for soft furnishing and department stores, whereby the user could input some basic information ie, the window size and the cost of the curtain fabric than a few simple calculations had to be made and the price of the curtains displayed on the screen

There were several other software companies in this field achieving very limited sales The major point that these companies seemed to have forgotten is that the average shop sales assistant is not computer literate, does not wish to mess around with floppy discs and has a fear of any computer larger than a pocket calculator

Bearing this in mind I contacted Casio Electronics which produces a large range of pocket computers with small display screens and capable of being programmed in Basic or machine code These machines could sell for under £100 with the software built in Rom and available as soon as the On button was pressed We sold several hundred of these machines

The reason I mention this is why use a sledgehammer to crack a nut? These are low tech, down market machines, but ideal for just this sort of basic purpose

I would like to see computers made to suit the software for which they are required The Amstrad PCW was a perfect example Technically it was behind but for commercial and practical purposes it has become one of the most successful machines in existence The one phrase that this industry should always bear in mind is

Software or application first hardware second

No one ever expected the Cray to become a mass market consumer product and as a less extreme example we have machines like the Amiga which unless drastically reduced in price, will end up as a powerful but discarded white elephant

For the average potential computer user there *must* be a valid reason to buy a micro Those who type letters can see clearly the advantages of buying the Amstrad PCW, and the machine was marketed primarily for that purpose To try to explain the capabilities of an Amiga would leave many people totally unimpressed The very first question I am asked by family and friends when showing off my latest computer is What does it do?

This is the very same question each manufacturer should ask before launching its product

Until the day that home computers can communicate with perfect speech synthesis and recognition produce printouts in typesetting quality, have constant monitoring over all house appliances bank and building society accounts automatically issue birthday anniversary cards and reminders to all friends and relatives link to my car and provide travel news best routes and routine maintenance link to my Video recorder and record any program that I might find interesting link to every form of reference in the world for unlimited information on any topic and could sell for under £500, until that day let us at least have some decent software

D Richman

NEXT WEEK

Special Supplement

Adventures

Check up on the very latest news and reviews in adventures in our supplement

Megahints – Tony Bridge has hundreds of tips for all the most baffling games on the market

The Rainbird file – we look at the latest offerings to be published by Rainbird the brand new *Knight Orc* from Level 9, plus *Silicon Dreams* on ST and Spectrum, and the Amstrad PCW *Pawn*

***Defender of the Crown* – the most spectacular historical simulation ever? From Mirrorsoft, on the Amiga**

Role Playing Games – a survey of the genre and how to get involved.

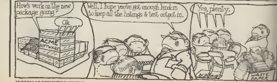
US databases

Ben Knox brings you the second part of his series on the big US networks.

Chess Board

Martin Bryant discusses chess ratings and how they are evaluated – for both human and computer playeze.

Hackers



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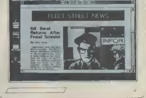
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